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A MONTHLY JOURNAL DEVOTED TO THE ELEVATOR AND GRAIN INTERESTS.

PUBLISHED BY
Mitchell Bros. Company,
(INCORPORATED.)

VOL. I.

CHICAGO, ILLINOIS, DECEMBER 15, 1882.

No. 6.

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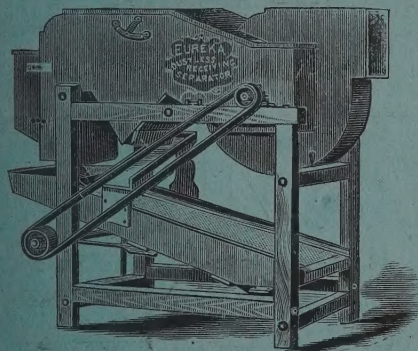
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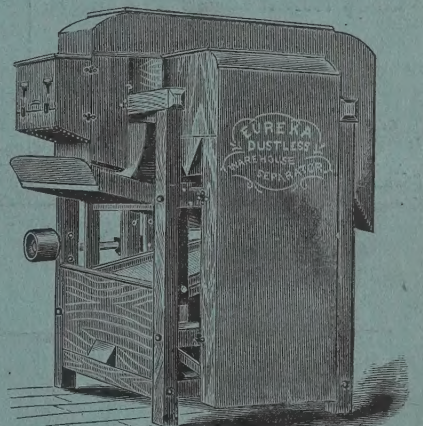
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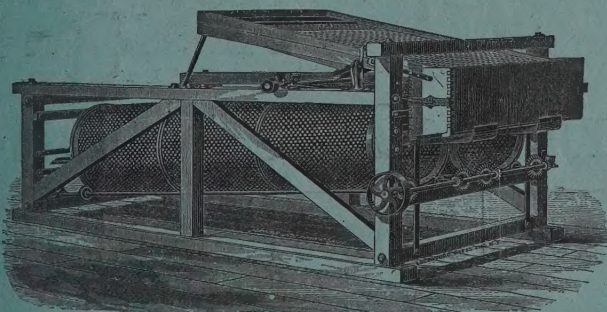
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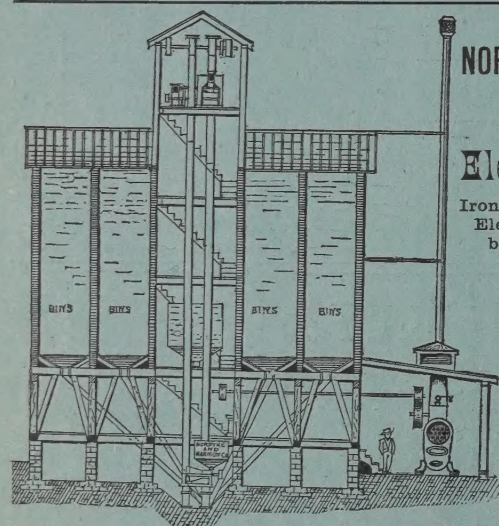
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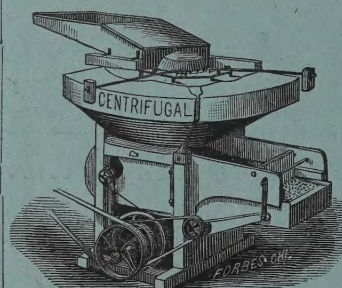
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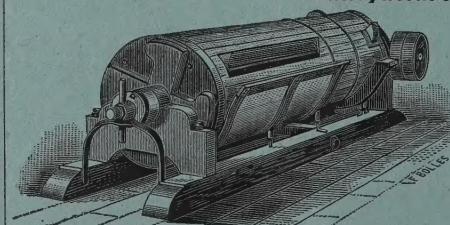
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ELEVATOR "A" AND THE ASSINIBOINE ROLLER MILLS AT PORTAGE LA PRAIRIE, MANITOBA.

It is not many years since the vast section of country north of Minnesota and Dakota was almost totally unknown, and any prophecy of its present condition, with its countless acres of fertile soil producing the finest wheat in the world, and its teeming thousands crowding in and bringing with them all the appliances of modern civilization, would have been looked upon as the delusion of a diseased brain. The shrewd, far-reaching eye of Horace Greeley had seen there the conditions and promise of ten of the largest of the great Eastern States, but he was regarded, as on many points in politics and social science, stark mad. But now that Manitoba has sprung by gigantic leaps into a position of growth, production and business activity that has attracted the attention and interest of the whole commercial world, the Canadian Northwest is looked upon as presenting limitless possibilities. Millions of acres of these lands are now under cultivation, and the Canadian Pacific Railroad, 400 miles north of Minneapolis, has pushed on 600 miles west, and by the coming summer will have reached the Rocky Mountains, and rapidly move on to meet the western line, which has already been extended 200 miles east from the Pacific. All through this vast section, far to the north and south of this line, the hard wheats are easily raised and attain their best qualities in perfection. Vast quantities of this wheat are already being produced, and the crops of the future are beyond calculation. Already preparations have been made and others planned to handle the grain of this new country and pour it into the currents of commerce for the purposes of manufacture and export.

Portage La Prairie, a town of 5,000 inhabitants, is picturesquely situated on the banks of the Assiniboine

River, which is here large and broad, 65 miles west of Winnipeg, the capital of Manitoba. A section of timber lies to the south, and on the north a wheat section which is said to be the finest in the Northwest, with four times the amount of wheat grown on it already of that raised near Winnipeg. At this town, close to the main line of the Canadian Pacific Railroad, and within a few rods of the Portage & Westbourn line, are the ELEVATOR "A," with a storage capacity of 115,000 bushels, and the

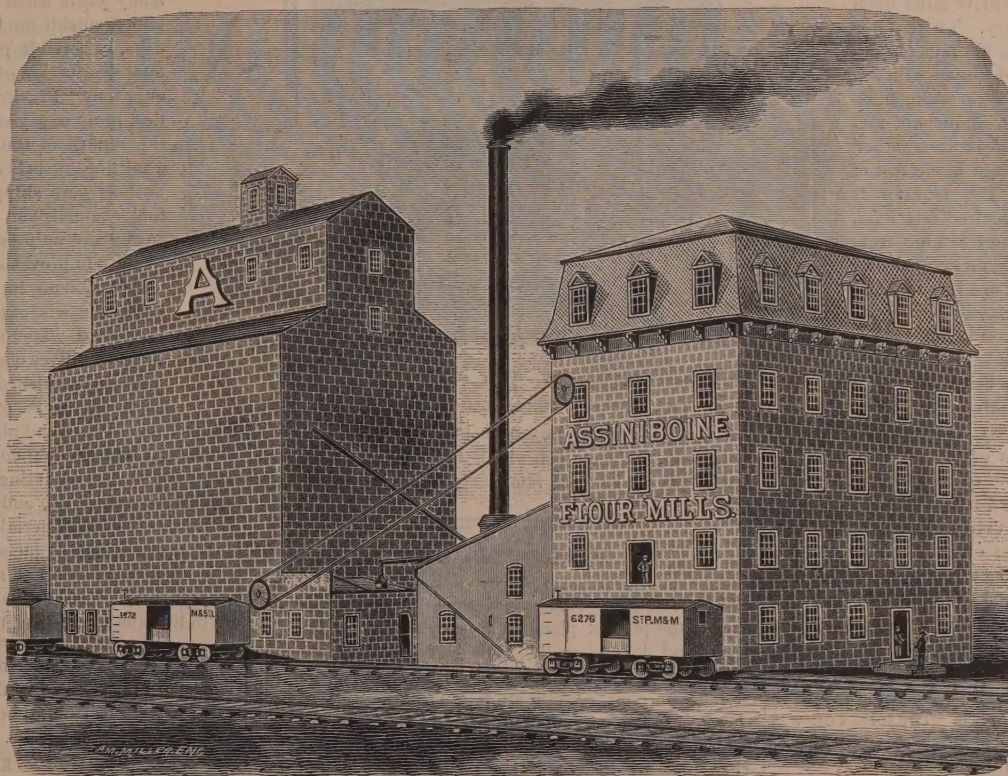
brick boiler and engine house, 45x23 feet on the ground, and 22 feet high, divided by a 9-inch partition wall in the center, the engine being in the division next to the mill. Both rooms are models of completeness, with every precaution to prevent fire.

The elevator and mill are 37 feet apart, and are connected by an iron spout, through which grain passes from the elevator to the mill. The elevator is 45x80 feet on the ground, and 97 feet high. The basement is 14 feet

high, and built with heavy timbers double, the bins being made of plank 2x8. There are two 10-inch elevators for lifting grain to the 500-bushel scales above, of which there are two—one for each elevator. Grain received from farmers' wagons is weighed in 100 or 40 bushel scales below, and then elevated above to bins. Cars on the mill or elevator track will be handled by wire rope attached to the mill engine.

The mill building is 40x56 feet, and 72 feet high. It has five stories, and all the floors are laid on joists 3x12, and 16 inches apart. At the southeast corner of the mill commences a plank drive-way, which passes the east side and north end of the mill on to the extreme northwest corner of the elevator, enclosed and covered, and forming a comfortable place for men and teams while unloading. Two loads can be taken in at once. North of the mill is a comfortable shed for teams.

The office is between the elevator and mill, as shown in the illustration, and is neatly furnished with all necessary conveniences. The office and office work are in charge of Mr. R. Robertson, late manager of Molson's Bank, Ridgeway, Ont. The Hon. F. Ogletree is the President of the Portage Milling Co., "Limited," and A. P. Campbell is Managing Director. James Cochran is head miller, S. Thompson is second miller, and W. Sheppy, engineer. Mr. John Cooper is assistant manager of the elevator, and Kenneth Campbell, warehouseman. The cost of buildings and machinery was \$65,000. So far the sales of flour have



ELEVATOR "A" AND THE ASSINIBOINE ROLLER MILLS AT PORTAGE LA PRAIRIE, MANITOBA.

"ASSINIBOINE MILLS," on the roller system, with a capacity of 200 barrels per day, both owned by the PORTAGE MILLING CO., "LIMITED." The opportunities here for securing hard Fife wheat, and the railroad facilities, are ample. Both elevator and mill are covered with iron, and are considered the finest in the province. The elevator obtains its power from the mill by wire cable, as shown in the engraving. The engine is 100 horse power, and is supplied with steam from two boilers, each 14 feet long and 60 inches in diameter, with a heavy iron front hiding the boilers and all the brick-work. The

been made entirely in the province, but the company expect soon to make Eastern shipments, and will be happy to give information respecting Manitoba wheat and flour. Messrs. Traill, Maulson & Clark, of Winnipeg, act as their agents in that city for Eastern markets. The company has extensive connections on both sides the Atlantic, and with their capital and business energy will no doubt secure a large and increasing business.

THE "BIG FOUR" ELEVATOR AT CINCINNATI.

The Big Four Elevator at the intersection of Harris street and the C., I. St. L. & C. and M. & C. Railroads, Cincinnati, was formally opened to the public on November 25, the occasion being celebrated by a lunch in which prominent representatives of the mercantile and commercial interests of the city partook. There was no speech-making or toasts indulged in, but everybody present was made to feel at home by Mr. Ingalls and his corps of assistants. After the building, machinery, etc., had been thoroughly inspected, the party was gratified by a practical exhibition of elevating a car-load of rye, after which the train was boarded by the visitors and they returned to the depot, where they were shown the new passenger sheds in process of erection.

The Big Four Elevator, which was finished about the 1st of November, was planned by J. A. McLennan, of Chicago, who has had considerable experience in that line, and has built some of the largest and finest grain elevators in this country. The superintendent of the work was Fred. M. Stimson, with Robt. Rutherford as foreman.

George Tozzer, purchasing agent for the Big Four, purchased all the material that entered into the construction of the building. Work was begun on the elevator last July. The ground on which it is situated was of such a nature that it was found necessary to drive piles upon which to construct the masonry. Twenty-four hundred piles, fourteen inches in diameter and thirty feet long, were driven down to within a few inches of the butt ends by a steam hammer, and on these were built the piers of masonry, one hundred and thirty-six in number. There are about eleven thousand cubic feet of masonry under the house. The elevator is ninety-three feet wide, two hundred feet long, and one hundred and forty-two feet high from the ground to the eaves. The smoke-stack is a symmetrical cylinder of brick, one hundred and forty-five feet high, and is provided with the latest devices for ventilation and perfect draught. The building is almost entirely fire-proof, being surrounded by a brick wall built as high as the eaves, and firmly fastened by iron girders. These girders have a play of about twelve inches perpendicular, to allow of the elevator settling, which it will do in a period of four or five years. About a million feet of lumber, nine car-loads of nails, and three million brick were used in the construction.

There are ten elevator boxes or chutes, five on each side of the building, and each carrier in the boxes will hold about fourteen pounds of grain. There are one hundred and ten bins, ranging in capacity from five to seven thousand bushels. There are five pocket bins, each divided into four parts, to contain different kinds of grain. The total capacity of the bins is about 890,000 bushels, exclusive of the floor space. The total cost was about \$200,000, and there are about sixty-five tons of various kinds of machinery in the building.

The diameter of the pulley is fourteen feet, and the belt, which is of rubber and made in Boston, is one of the largest of the kind in the country, being two hundred and eighty-seven feet long and forty inches wide. The engine running the machinery is a massive affair, of the non-condensing pattern, four hundred horse-power, built by the Fishkill Landing Machine Company, at Fishkill-on-the-Hudson, and works as noiselessly as a sewing-machine. The elevator is also provided with a duplex fire-pump equal to four fire-engines, for throwing water through five-inch pipe, and thence through three-inch hose and brass nozzles to any part of the building at a second's warning. It is a Worthington pump, built in New York, and is one of the most effective of the kind

in use. The boilers consist of three double batteries, built in Detroit, Mich., sixty inches in diameter and sixteen feet long, with a pressure test of 150 pounds to the square inch. The cylinder of the engine is forty-two inches in diameter, with a forty-two inch stroke.

The cupola of the elevator is externally fire-proof, being roofed and sheathed with tin, and every means have been adopted against any possible loss by fire to the building or its contents.

The ordinary capacity of the elevator is about two hundred cars per day, but it can be increased to three hundred in cases of emergency. Cars run through the middle of the elevator, and chutes are built on the south side for loading and unloading wagons.

The grain trade of Cincinnati will be greatly accommodated by this new enterprise, which is the largest of the kind in the city, convenient to the railroads from the West, and it has all the capacity for doing an elevator business that any city in the West enjoys. Several

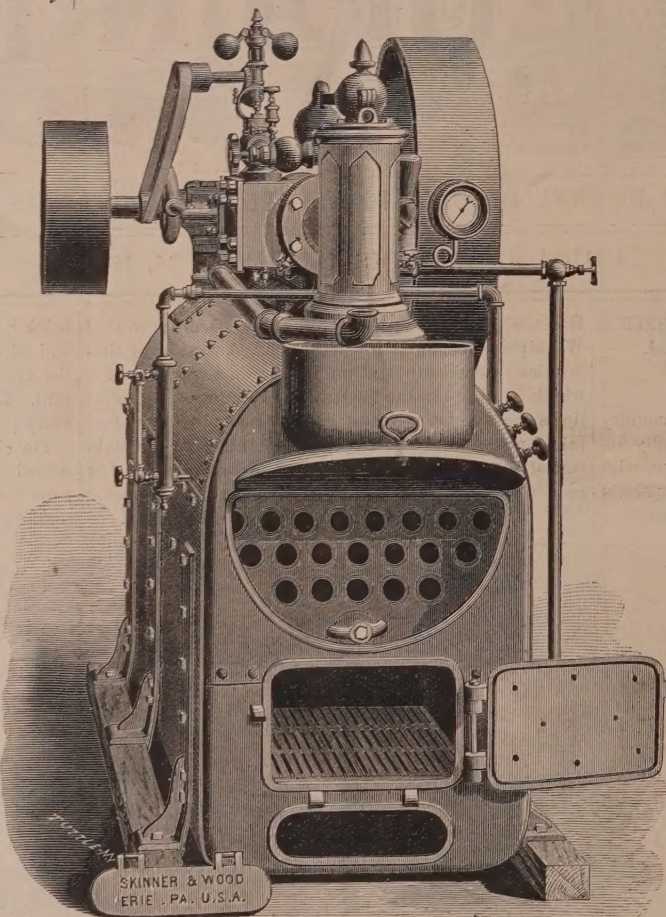


FIG. 3. THE SKINNER PORTABLE ENGINE. FRONT VIEW.

new devices in machinery have been introduced by Mr. McLennan, the architect, which will readily be appreciated by people who are familiar with the elevator business.

THE MISSISSIPPI OUTLET.

The *Cincinnati Commercial* treats with unmeasured severity the present plans for improving the Mississippi River, and denounces the Eads jetties at the mouth of the river as a "fraudulent job." The people of New Orleans are charged with an infatuation on the subject, "laughable were it not painful." It is stated that the government is paying for thirty feet of channel depth when they are only obtaining twenty-five feet, and that this additional five feet is what is needed to render the access to New Orleans equal to that of the harbor of New York and is what has been paid for. The great New York steamers cannot get to New Orleans. There are three mud lumps outside of the jetties, one of them located in the axis of the jetty channel, with a channel on each side, on which the water has a depth of only sixteen feet. Capt. Heuer is given as the authority for this statement, which has been made before the Congressional Committee, recently appointed to examine the whole matter. The *Commercial* presents the whole dredging business as an evidence of the failure of the jetties, and their uselessness, as by the modern dredge alone the channel could as well be kept open. "The

time will come when they (the jetties) must be removed as an obstruction to navigation. * * There should be an outlet at Lake Borgne by which in five miles the surface water of the river could reach the gulf instead of flowing, over one hundred miles, on the crest of the mud ridge the mighty stream has erected for itself and projected into the sea." Viewing the completed jetty improvements in this light, it is claimed that the plan of the Mississippi Improvement Commission is simply to extend the "jetty swindle" up the river. The expenditure of millions, it is charged, is the influence which favors the project and obscures the truth. There is, also, behind it, a "political conspiracy," with all its sinister motives and methods urging on this "jobbers scheme."

"The jobbers gabble about the grandeur of the great river. That is undisputed, and manifest to the whole world. This river is a giant, and the jobbers would treat it as a pigmy. It is the mightiest flood of the continent --the father of floods--rolling southward like a sea, and the theory is that its outlets should be closed, its mouths obstructed--the overwhelming waters that spread fifty miles wide at times --that wash away the shores as if they were paper; in which real forests and islands disappear like the mists of a mirage; a turbid, vast scope of rushing waves, in which the steamboatman sees for hours no land, but only the roofs of houses and the tops of trees--why, this is to be dammed, and wattled, and netted, and coddled, and bound, and driven with sticks and mud into a channel two hundred feet wide and twenty-six feet deep."

The people of New Orleans may well be left to answer to the charge of "infatuation." Of all the world they are the ones most deeply interested in the practical questions here presented, and best able to say whether the jetties have, as promised, enabled commerce to reach their wharves in accordance with its own demands. They were the sufferers during many years when hundreds of vessels were detained outside the bars, often for periods of forty days, at terrible present losses and the almost total destruction of prospective commercial calculations. Previous to the opening of the jetties, in no one year had there passed through the mouth of the Mississippi over a quarter of a million bushels of grain. In 1886, 14,000,000 bushels were shipped to foreign ports through that channel, and the increase since has been steady and unimpeded. The questions involved in the improvement of the Mississippi contain problems in hydraulics which may well baffle the wisdom of the greatest engineers of the world. There is no necessity of impeaching the motives of a commission composed of the most distinguished and honorable military and civil engineers, officers and scientists of our country. Their work and plans are under the review of an impartial Congressional committee, who, in spite of the press charges of "junketing," etc., have, we believe, done their work faithfully, and as thoroughly as time and circumstances would permit. We may leave to their report the questions of facts, and to their suggestions a basis for future plans and action founded on no local or partizan prejudices, but considerably and wisely looking to the true interests of the whole country.

Nearly 8,000 boats have made the run on the Erie and Champlain canals during the present season, but owing to the moderate freight, boat owners have had a hard struggle to make expenses. Boats carry generally from 6,000 to 8,000 bushels of grain, but at four and one-half and five-cent freight rates the season has not equalled the standard of former years. About 100 boats have laid up all the season, not being able to pay expenses.

Here are big figures, prepared by Mr. Walker, the statistician of the New York Produce Exchange, being an estimate of the agricultural products of the United States for this year, as compared with those of last year:

FOR THE YEAR 1882, IN BUSHELS.			
Wheat.....	510,000,000	Rye.....	20,000,000
Corn.....	1,800,000,000	Buckwheat.....	12,000,000
Oats.....	480,000,000	Potatoes.....	160,000,000
Barley.....	45,000,000	Cotton, bales.....	6,500,000
FOR THE YEAR 1881, IN BUSHELS.			
Wheat.....	380,280,000	Rye.....	20,704,950
Corn.....	1,194,016,000	Buckwheat.....	14,617,585
Oats.....	416,481,000	Potatoes.....	167,659,579
Barley.....	41,161,330	Cotton, bales.....	6,343,269

THE "SKINNER" PORTABLE AND STATIONARY ENGINES.

The demand for engines of moderate capacity for use in light manufacturing establishments or in those where only a limited power is required, such as the ordinary grain elevator, is one which is growing from year to year. The expansion of our industrial resources has of necessity called in the aid of steam for the production and application of power; and the wider and more general the use of steam power has become the greater has the demand grown for engines of a superior type. We illustrate on this and the opposite page the "Skinner" Engine, built by MESSRS. SKINNER & WOOD, of Erie, Pa., which may be justly reckoned among this class of steam motors. This engine has been in use over thirteen years and is now found in establishments not only in almost every State of the Union, but also in Central and South America. Recognizing the fact that the highest excellence is attainable only through the devotion of energy to specialties, the manufacturers of this engine for years spent their efforts in the endeavor to attain a perfect system of building a few sizes of the best engines, and have steadfastly refused to enlarge their line of work. We may note here as one beneficial result of thus restricting their line of manufacture, is that they are enabled to build everything to standard sizes, and this duplication of parts is a not only a matter of convenience but a saving of expense as every one knows that repairs done by local machine shops require delay and are expensive.

On the opposite page, *Fig. 3* shows the front view of their Portable Engine of from ten to twenty horse-power. The stationary arch boiler has long been appreciated for its safety, effective steaming qualities, ease of cleaning, adaptability to all kinds of fuel and other good qualities; and by adding the feature of portability Messrs. Skinner & Wood obtained a boiler which they believe is unexcelled in meeting the requirements of general use. The diameter of the boiler and the number and length of its flues are correctly proportioned to its length, thus rendering every part effective heating surface and securing the best results in the use of fuel. Of course the ease with which scale and impurities can be removed is a very important matter, as all water is more or less charged with impurities which more or less impair the effectiveness of a boiler and sometimes prove a source of danger. In the boiler of this engine the scale settles in the lower part of the shell below the flues, where there is nothing to prevent its easy removal through a hand plate in the front flue sheet. In a locomotive boiler the first part to give out is the fire box, to replace which costs from forty to fifty per cent. of the original price, while in the boiler under consideration a new fire-box can be put in for twenty per cent. of the original cost, and the lining, which is easiest to replace,

put in for about five per cent. of its original price. *Fig. 1* shows the boiler and engine detached and *Fig. 2* the plan of the stationary engine, the details of which, space compels us to refer to as briefly as possible. Every one knows that the greatest wear on an engine is almost always on the cylinder and valve seat. In the engine here illustrated great care is taken to use the mixture of iron that will produce a cylinder that will

steel and the connecting rod is also of steel. The crank is of heavy wrought iron, forged solid and slotted. The Combined Check Stop and Relief Valve, are, we believe, unique with this engine, and were suggested by the great annoyance and damage incurred by the closing of the stop-valve between pump and boiler and neglecting to open it upon starting the pump.

In the above paragraphs we have necessarily omitted many points in reference both to the boiler and the mechanism of the engine, which possess a practical value and have contributed to their efficiency and reputation. These engines have long been familiar, not only to elevator owners but to other users of steam; and throughout the Northwest they are found in a legion of elevators, along both the old and new lines of road. They are built up to and including 25-horse power and are furnished either with the Skinner Portable Return Flue Boiler (a specialty of this firm) or with Stationary Tubular Boilers, as may be preferred. One fact showing the estimation in which this engine is held is that the builders are entrusted each year with additional orders for their improved engines and boilers from prominent grain dealers who have been their customers

for the past nine years, and some of whom have between twenty and thirty of their engines in operation. Messrs. SKINNER & WOOD will be pleased to give any desired information respecting their engines and boilers to interested parties who should address them at Erie, Pa., as above.

The *Railroad Gazette* of November 17th says: "The canal shipments can not be said to have been reduced by the competition of the railroads except in the years of long and desperate railroad wars, namely, in 1876 and 1881; they were larger on the average in the five years ending with 1881, including that year of the worst railroad war, than in the five years ending with 1875, when there was no such season of very low rail rates—56,600,000 in the last and 52,000,000 in the first five years; and the largest grain shipments ever made by canal were in 1880. It is true that the canal shipments are smaller in proportion to the total New York receipts than they used to be. This is partly due to the fact that while flour receipts have increased immensely, shipments of flour by canal have virtually ceased. In 1871 the canal delivered flour equivalent to 1-

460,842 bushels at tide-water; in 1881 only 49,500 bushels; and meanwhile the total flour receipts of New York increased from 18,596,477 to 26,777,986. The receipts by canal were thus less than one-fifth of 1 per cent. of the whole in 1881, against nearly 9 per cent. in 1871. But in grain, while there is some increase in canal receipts, there is a much greater one in rail receipts. Of grain and flour together the receipts by rail were about 34,000,000 bushels in 1871, 55,800,000 in 1874, 64,200,000 in 1876, 90,300,000 in 1878, 106,000,000

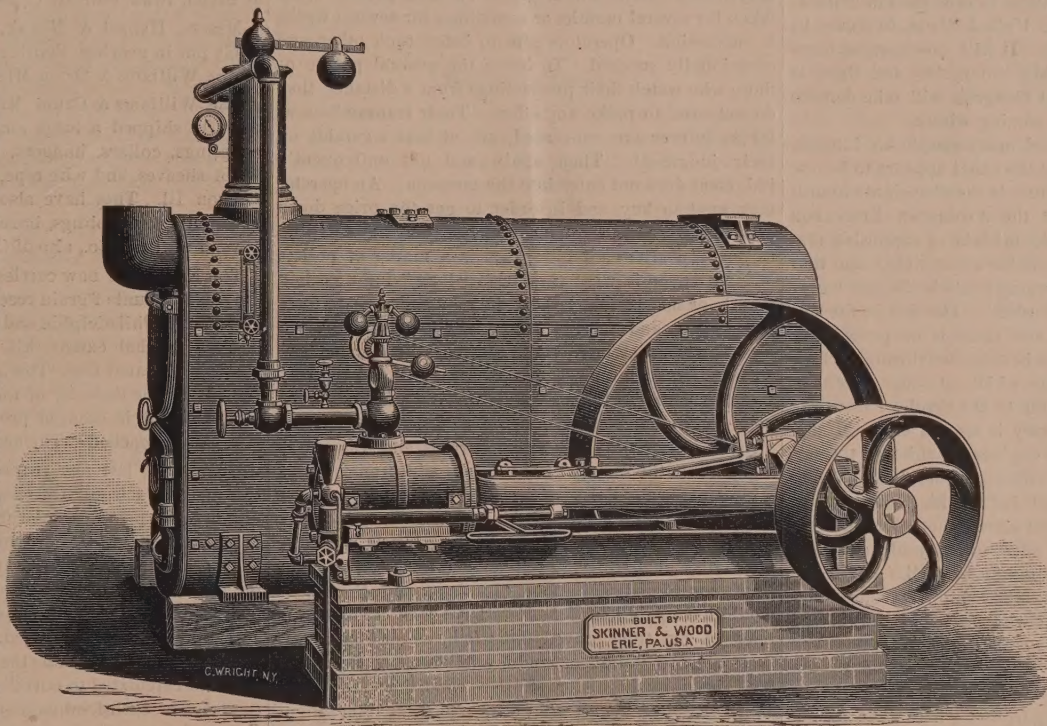


FIG. 1.—THE SKINNER ENGINE AND BOILER, DETACHED.

resist wear the longest. This result has been obtained by much study, experiment and expense, but has amply repaid the builders. The frame of the engine is cast in one piece, with cylinder head and main shaft boxes, and on the same plane with center of cylinder. Whatever strain, therefore, there may be, is in a direct line with the piston-rod, and the evil of the engine getting out of line is avoided. The bed is so formed (in the portable

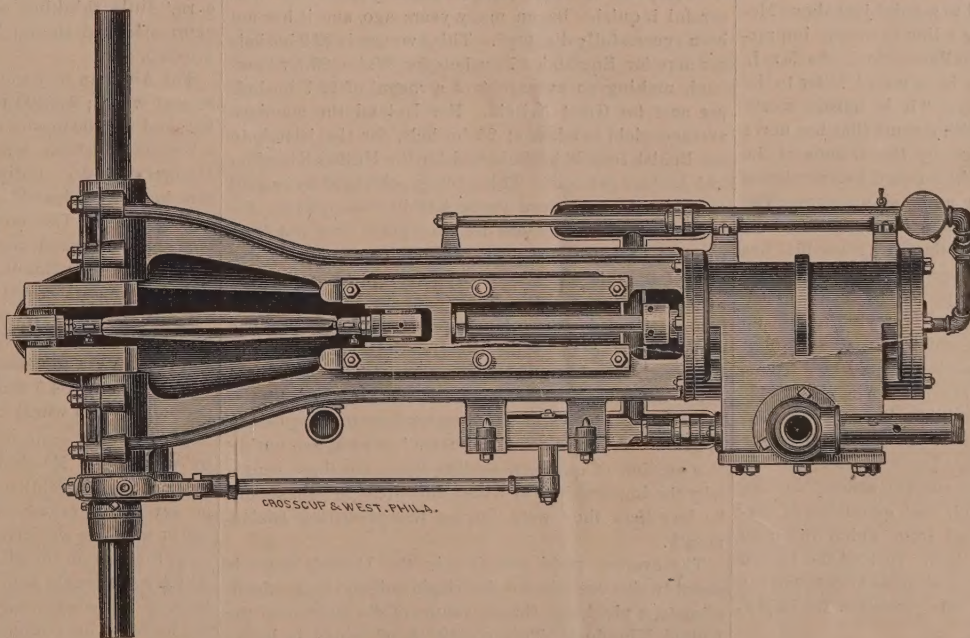


FIG. 2.—PLAN OF THE SKINNER STATIONARY ENGINE.

engines) as to prevent any drippings from reaching the boiler, by means of drip pans which are placed under the pump, valve stem, shaft bearings and eccentric. By means of these devices the boiler can be kept clean, all oil and water being carried from the engine through one pipe. The shaft bearings are large and provision is made for taking up wear in direct line with the cylinder and to insure perfect lubrication. The valve is the plain slide valve, cutting off at five-eighths stroke. The valve rod, piston-rod, pump and eccentric rods are of the best

in 1879, 98,000,000 in 1880, and 101,600,000 in 1881. The canal has remained important, but comparatively it is less important than it used to be."

THE ROUTE OF THE HENNEPIN CANAL.

The friends of the Hennepin Canal project are much elated over the result of the vote at the recent election in this State upon the proposition to cede the old Illinois and Michigan Canal to the United States, to secure its enlargement and extension. It will now assume more clearly the aspect of a public enterprise, and there is good reason to believe that Congress will take definite action in reference to it the coming winter.

A question in which a good many people are interested, now that the extension of the canal appears to be one of the certainties of the future, is the direction which it will take. We notice that the AMERICAN ELEVATOR AND GRAIN TRADE makes the mistake of supposing that the experimental surveys have been completed, and that the imaginary Meredosia swamp route is the one "generally understood to be adopted." The fact is, the surveys are not yet finished, and there is no probability whatever that the canal is to be extended through a long line of swamps and marshes which, at some seasons of the year, are filled with water to the depth of from five to ten feet. Our contemporary is also in error in supposing Mr. Herr to be the engineer-in-chief of the surveys. Maj. Benyard is the efficient general supervising officer, and we have too much faith in his judgment and common sense to believe that he will not give due consideration to a route which offers so many advantages as that pointed out in the river and harbor bill, *i. e.*, via Moline or Rock Island to the Mississippi. If there were good and sufficient reasons why the canal should run through a miserably poor country, ending in bogs and morasses which serve as a "waste-ware" to the Mississippi, where it would be in danger of inundation and destruction with each recurring freshet, where there are not a thousand people within five miles of its proposed terminus, and not a railroad within ten miles, the *Grain Cleaner* would have no objection to offer, as it recognizes the fact that this canal is not to be for the benefit of a few localities, but for the good of the entire Northwest. But in comparing this route with the one which has been in the minds of all people since the canal was first talked of, *viz.*, from Hennepin by way of Anawan and the Green river to Rock river, and from there either down the Rock to the Mississippi below Rock Island, or along the Rock Island railroad to a point just above Moline, the very idea of following a line so utterly impracticable resolves itself into a hallucination. As Mr. L. F. Parker, of Davenport, Iowa, in a recent letter to the *Chicago Tribune*, correctly says, "it is hardly worth while to make comparisons with a route that has never been thought worthy of notice by the friends of the canal, but has only been brought forward by enemies as a means of killing this great national measure. The Rock Island route stands alone as incomparable in a whole line of advantages. It is the only route that has been before the people. It has been recognized as striking the center of the country expected to furnish business for the canal. The difficulty of carrying freight up the rapids and the ease with which it can be brought down is understood. This item alone would be millions in its favor. It taps the river at a point where railroads center, where there is now established a large commercial and manufacturing business, and where there are now 60,000 people. * * Last, but not least, the old route terminates near the government armory and arsenal on Rock Island, to which vast quantities of materials are to be transported, and from which the most convenient outlets should be had. In 1864 the United States Senate voted to construct a ship canal between the river and the lakes, mainly on the ground of its importance as a military measure."

Our contemporary seems to think that it would require a vast outlay of money and labor for rock excavations by the Rock Island way. Not so. There will be little need of working in rock even at this end of the route, while by following the Rock river the canal would have an easy grade to the Mississippi, and by the railroad a comparative level.

When the surveys are finished and the estimates prepared, we think it will be found that the project which has received the endorsement of the engineers will be the one extending the canal to Rock Island by way of the Rock river.—*The Grain Cleaner*.

HOW THE BOYS WORK IT.

In trading in options for future delivery there is constantly so much scheming and manœuvring that even operators who give option dealings a great deal of their time, and study the bearings of the market closely, are occasionally all at sea. When this is the case, it is easy to see how an outsider may soon be lost in watching the labyrinthine maze which prices on Call present when taken for several months or sometimes for several weeks in succession. Operators aim to befog each other and occasionally succeed. To befog the general public or those who watch their proceedings from a distance, they do not need to make any effort. Their transactions, as far as futures are concerned, are at best a gamble on their judgment. Then again and not unfrequently judgment does not enter into the question. An operator may want to buy, and in order to get the price down offer to sell a limited quantity at less than he is willing to pay and afterward bids; this is a matter of policy. When a buyer is what they term "long" for a certain month, or has bought largely, he may endeavor to force the price up and "corner" those who have sold "short," or sold what they have yet to purchase before they can deliver. In such a tussle between "bulls" and "bears" the side with the longest purse generally rakes in the coin. Sales made months ago for November delivery form no criterion of values now current, and it is safe to assume that the same will be the case with transfers now taking place for delivery three or four months hence. To show how far some of these Call transactions are from the actual mark, sales have been made which by all parties, including the sellers themselves, were at the time considered egregious blunders, and the latter would have paid handsomely to have been immediately released, but time proved them to be as profitable ventures as good judgment could well dictate. Purchases have been made under similar conditions and with similar results. As a matter of course, some transactions which at the outset are supposed to be mistakes turn out so in fact.

RAISING AND EXPORTING WHEAT.

The *London Times* is not always accurate in its descriptions of agricultural expositions and improvements, but in the matter of the agricultural statistics of the United Kingdom it is an authority which few will question. The standard which it has adopted as a fair average yield of wheat for that country is the result of careful inquiries begun many years ago, and it has not been successfully disputed. This average is 29.9 bushels per acre for England, 27 bushels for Wales, 29 for Scotland, making an average (not a mean) of 29.7 bushels per acre for Great Britain. For Ireland the standard average yield is taken at 25 bushels, for the islands in the British seas 28 bushels, and for the United Kingdom 29.5 bushels per acre. This average, obtained by careful estimates for seventeen years, has in consequence of a succession of bad seasons for four years past not been reached during those years, although every successive year of the four has shown an improvement on the year next preceding, and the average for the harvest of 1882 just garnered is 28 bushels against 27 for 1881. The acreage during the same quadrennial period has also increased, reaching 3,164,000 acres. The combined effect on prices of this increased acreage and higher average yield has been supplemented by the large stock of grain and flour carried over from last year, amounting to a million of quarters, so that there are three causes why the importations of wheat into Great Britain should be less than they were during the preceding twelve-month.

The average yield per acre in the United States is about twelve bushels despite virgin soil and magnificent climate, a yield, say, three-sevenths of the average of the United Kingdom. This condition of things is by no means creditable to the American farmer, but we suppose it must be endured so long as he pursues his wasteful practice of wearing out his land and then moving West to wear out more, until the public domain shall be exhausted.

The *Boston Advertiser* remarks: "The wheat acreage of the country may be estimated at nearly or fully 40,000,000, and the average product at nearly or fully 15 bushels per acre, making a total yield of possibly 600,000,000 bushels, and certainly not less than 550,000,000 bushels."

General Items.

The machinery for the new mill of D. Scott, at Macomb, Ill., was furnished by the Williams & Orton Manufacturing Co., of Sterling, Ill.

The Williams & Orton Manufacturing Company, of Sterling, Ill., furnished the machinery for the elevator at Breda, Iowa, built by C. Browning.

Messrs. Hanzel & Novak, of Schuyler, Neb., have lately put in gearing, shafting, etc., which was furnished by the Williams & Orton Mfg. Co., of Sterling, Ill.

The Williams & Orton Mfg. Co., Sterling, Ill., have recently shipped a large amount of shafting, pulleys, couplings, collars, hangers, boxes, two 7-foot and two 5-foot sheaves, and wire rope, to the Oregon Mfg. Co., of Oregon, Ill. They have also sent 250 feet of shafting, with pulleys, couplings, boxes, collars, etc., to the Rock River Furniture Co., also of Oregon, Ill.

The Erie canal now carries Eastward over one-fifth of the total amount of grain received at the ports of Boston, New York, Philadelphia and Baltimore. It remains to be seen to what extent this trade will be increased by making the canal free. The amount must necessarily be limited by the capacity of the canal in its present condition, and it is thought probable the limit has already been nearly reached. The next step will be enlargement.

During the last few years the importation of food of various kinds from America to Europe has given vast numbers of people opportunities to supply themselves with articles of food at reasonable prices to which they had previously been comparative strangers. The cost of producing them of necessity made them high in price, and beyond the reach of those whose means were limited. Now all that is changed. American food to them is a God-send, and that they will strongly resist any measure calculated to curtail the supply and thus raise the price of such food cannot be doubted.

Some years since a member of Congress was dilating on the fact that Kentucky was sending to the Eastern cities her corn, oats, hay, etc. A member from that State rose to correct the gentleman, saying that Kentucky did not send those products east. In reply he was told that she did send east hogs to which she had fed her corn, beeves to which she had fed her hay and grass, and horses to which she fed her oats. These brought her hay and grain east in a condensed form. The Kentucky man subsided with the expression: "I acknowledge the error," little thinking, perhaps, that he was coining an expression that should be handed down the ages as a proverb.

The Austrian monarchy still hopes to export 1,350,000 tons of wheat; 222,500 tons of rye; 523,000 tons of barley; and 222,500 tons of oats. But these estimates from a Vienna statistician, who shows the utmost Austria and Hungary can do. Italian wheat is from 100 to 130 per cent in 1882, against 60 to 90 per cent. 1881, 100 being an average crop. The crop in South Germany is much damaged, in Poland poor, in Bessarabia partly a total failure, Central Russia, with a population of thirteen millions, reports wheat at 87½, rye at 62½, barley at 82½, oats at 87½. Roumania, Servia, and Bulgaria report a very brilliant crop, except for corn. But wheat and rye have in some cases reached the highest yield anywhere, namely 1.45 tons per hectare, or 1,600 pounds per acre of both wheat and rye.

The export of grain from the Western States to Europe by way of the Mississippi river, says the *Mechanical News*, is rapidly fulfilling the predictions which we have on several occasions made in regard to it. Some time ago an estimate was given by New Orleans journals of the large tonnage on the Mississippi available for this trade, which was thought sufficient to move two-and-a-half millions of bushels monthly. It is confidently believed that the trade for the commercial year 1882-3 would reach an aggregate of 30,000,000 bushels, requiring nearly 600 sea-going vessels from the port of New Orleans. Evidences have not been wanting that the vigorous development of the grain traffic by the barge-line route, and the prospect of its steady increase in the future have had the natural effect of producing serious alarm in railroad circles, and especially at Chicago. The farmers of Kansas and Missouri desire, not unreasonably, the benefit of the cheapest outlet for their surplus products, whichever it may be, as the money thus saved goes into their own pockets, and very materially enhances the profits on their crop.

Mechanical.

Why Nuts Work Loose.

Mr. Joshua Rose, a well-known mechanical writer, explains that the tendency of a nut to unwind and recede from the pressure upon its radical face is proportionate to the pitch of the thread and the diameter of the bolt; and the finer the thread upon a given diameter of bolt, or the larger the diameter of bolt with a given pitch of thread, the less will be the tendency of the nut to move back. In the case of ordinary bolts and nuts, a given diameter of bolt is given a standard pitch of thread, and these pitches are not so fine as to prevent the nuts from unscrewing in many cases, unless check nuts are used. It would be otherwise if the nut-thread fitted reasonably tight upon the bolt; for if the nut is screwed well home, it should remain there.

Putting on a Cross Belt.

There are few people who pay any attention as to how they put on a cross belt. The right way to do it is to put the belt on in such a manner that the driving pulley will have a tendency to rough up the splices, then when the slices come to the crossing they will smooth each other down instead of catching under the corners of each and tearing open a splice. A quarter-twist belt should never be used where it can be avoided; but when it is used, it should be as narrow as practicable, and the pulleys should be large. Increasing the width of a quarter-twist belt does not increase its power in the same ratio as in a straight or cross belt. There is not more than one per cent advantage in using an oiled belt with the grain side next to the pulley, which will hardly compensate for the ugly look which a belt presents when put on in that manner.

Remedies for Boiler Scale.

The following are a few of the remedies for scale in boilers recommended by various authorities: Potatoes, one-fiftieth of weight of water, prevent adherence of scale. 2. Twelve parts of salt, two and one-half caustic soda, one-eighth extract of oak bark, one-half part of potash. 3. Pieces of oak wood suspended in a boiler and renewed monthly prevent deposits. 4. Two ounces of muriate of ammonia in a boiler twice a week prevents incrustation and decomposes scale. 5. Coating of three parts black lead, eighteen of tallow, applied hot to the inside of a boiler every week, prevents scale. 6. Thirteen pounds of molasses, fed occasionally into an eight-horse boiler, prevented incrustation for six months. 7. Mahogany or oak sawdust in limited quantities. The tannic acid attacks the iron, and should be used with caution. 8. Slippery elm bark has been used with some success. 9. Carbonate of soda. 10. Chloride of tin. 11. Spent tanners' bark. 12. Constant blowing off.

The Line Shaft.

The line shaft is frequently situated on different floors, or beyond walls—away from the engine—so that any direct means of measurement will not always be possible. In these cases much personal ingenuity may be required to accomplish the result. The following may, however, give a clew of how at least to proceed with the work. It is necessary to have the line shaft in line; that is, level and straight. This should be first attended to, and it may often be of much labor. However, the length of shaft receiving the belt from the engine should be perfectly straight and level. Drop from the side of this shaft two plumb lines, as far apart from each other as is possible—at least ten feet apart. If the shaft is not of the same diameter at the plumb lines, due allowance should be made, so that each line shall be of the same distance from the center of the shaft. Stretch, horizontally, a fine cord in line with the plumb lines, either above or below the shaft, as is most convenient. Stretch another fine cord over the proposed location of the engine shaft and on about the same level as the first cord. These two cords should be parallel. To do this use two long poles with which to caliper the distance between the cords, by placing the poles side by side, so that one laps the other—thus measuring the distance between the cords. Mark on one pole the position of the extremity of the other. Do this at both ends of the cords, and adjust the second cord until the distance between the two

is the same at both ends. The cords will then be parallel. Finally, drop two plumb lines from this second line, at a distance apart equal to the length of the engine shaft, and set the shaft so that its centers correspond with the plumb lines. The engine shaft last of all should be made level. If the line shaft is perfectly straight and in line—it might at times be unnecessary to stretch the first cord—all that is needed being to adjust the cord over the engine shaft, parallel to the line shaft, with the poles as before stated. The cord, however, is more likely to be true than the shaft.

Power of Belts.

To determine the minimum width in inches necessary for a belt to drive machinery where power and speed are known, apply this rule: Multiply the horse-power by 100 and divide by the speed of the belt in feet per minute. Thus for instance, if 20 horse-power has to be transmitted, and the circumference of the pulley has a speed of 200 feet per minute, then the minimum width of the belt will be expressed by $20 \times 100 : 200$, or $2,000 : 200$, or 10 inches very nearly. This rule is based on the principle established by experience, that every inch width of belt cannot transmit more than one horse-power when moving with a velocity of 100 feet per minute, and that the width of the belt must increase in the direct ratio of the power to be transmitted and in the inverse ratio of the velocity of the belt. Therefore 20 horse-power takes a belt of 20 inches in width moving 100 feet per minute, or 10 inches wide moving 200 feet, or five inches wide moving 400 feet, or two and one-half inches wide moving 800 feet per minute.

THE CORN SMUT.

The smut in Indian corn is not only the work of a fungus, but is a fungus in itself; the trouble is caused by a fungus; the smut is the fungus in its last stages of growth, as found upon the corn plant. But some reader may ask: What is a fungus? This is not an altogether easy question to answer. It is a plant. A fungus is a member of a low order of flowerless plants and has no leaves or true roots. A most familiar example of a fungus is seen in the common mushroom and the various sorts of toadstools. These are among the larger forms of these low and comparatively simple plants. The various kinds of moulds that grow upon the breads, cakes, preserves, etc., are all fungi and are nearer the corn smut plant in structure than the mushroom and toadstool.

Fungi propagate by means of spores. These are small bodies, usually spherical in shape and microscopic in size. They are produced in great abundance and are so light, that they are carried here and there by every passing breeze. Scientific men, who have examined the subject, most carefully, tell us that the ordinary air contains many of these spores to every square foot, and they are ready to germinate and grow so soon as favorable conditions are produced. As they need moisture and a good degree of heat (and, of course, some substance upon which to grow) it is easy to see the reason for the prevalence of moulds during damp weather in summer. It is at such times that the housewife has the greatest trouble in keeping her bread and other articles of food from being spoiled by a rapid development of moulds upon them. I have had no liking for cream cakes, since the one that was partly eaten before the fine forest of mould upon the internal "cream" was observed.

But this will be sufficient for a brief description of fungi, and we will now look into the nature of the smut that grows upon the corn.

There are two general classes of fungi, those that grow upon dead and decaying organic substances, and those known as parasites, that grow upon living substances, often to their destruction. Among the latter class are such pests to the farmer as the potato rot, wheat rust, oat and barley smut, etc. The gardener has his raspberry rust, onion smut, peach, curl and grape mildew. The list of parasitic fungi is a long one, and the corn smut is only one of a larger number of these peculiar pests to farm and garden crops.

The case of the corn smut is one where one plant—a small one—grows upon and derives its nourishment from the elaborated juices of another.

It is not known just how the corn smut first starts its destructive growth, but as the spores are so small and light, it is probable that they reach the corn plant from

the air, and falling upon the surface of leaf or stem, soon germinate and send their threads and filaments into the tissue of the stem or leaf. After entrance has been effected the threads increase in number and length, running in all directions on the substance of the corn plant, robbing it of nourishment as it goes. After growing for a time the smut plant prepares for the production of a new crop of spores, by means of which the pest is carried through the winter and this species of smut perpetuated; this formation of spores usually takes place in the tissue of the grains of corn. At first the infested grains are noticed to be of unusual size, followed in a short time by a dark color within, until the grains have reached large dimensions—many times their normal size, and are soft and spongy throughout. In a short time the interior of the grain, in fact nearly all within the hull, is composed of a dark, sticky mass of purplish spores. The early stages of the corn smut are not easily noticed, because the ears are covered closely with the husks, and the first signs of the pest are the black and unsightly masses very appropriately known as smut.

This production of the spores is not entirely confined to the ears, but make their appearance in the tassel or male flowers at the top of the stalk, and in bad cases the joints of the stems and the ribs in the leaves are likewise affected.

The number of spores that a single smutted corn plant will produce is almost beyond computation. As the spores are the means of propagation of the pest, and the smut is composed of these spores, it is clear that, in order to check the increase of this pest, the spores should be destroyed. This can be done by burning all smutted ears. Smut is injurious to live stock that eat it in their fodder; it acts both as a poison and a mechanical irritant. It is thought by some corn growers that the smut is planted with the corn, adhering to the grains. It is recommended to wash the grain and dust it with lime or ashes before planting.

WINTER RATES AT THE ST. LOUIS ELEVATORS.

The following agreement was issued, signed and approved by all the elevator companies of St. Louis: To meet the wants of the trade, we, the undersigned, have agreed that winter rates of storage on bulk grain in elevators shall go into effect December 1, 1882. Rates of winter storage: $1\frac{1}{2}$ cents per bushels for the first ten days or any part thereof; $\frac{1}{4}$ cent per bushel for each subsequent ten days until 4 cents per bushel storage has accrued, when the grain will be carried free until April 7, 1883, thus making receipts regular for delivery Monday, April 2, 1883. These rates only to apply on grain received into elevators on and after December 1, 1882, and so long as the grain remains in good condition. These terms are most favorable to country shippers who can have their grain stored for four months at a cost of $2\frac{1}{2}$ cents per bushel, the receiver paying $1\frac{1}{2}$ cents of the charge.

RICHMOND'S GRAIN BUSINESS.

Aside from its large milling interests, Richmond has of late years become one of the prominent through and local grain markets of this coast, and in addition to the northern and southern distribution, the direct foreign exports of wheat to Spain, Portugal and other European countries are quite large. To facilitate this there is a grain elevator in the city with a capacity of 450,000 bushels. As at present the depth of water at Richmond only allows coasting vessels to come right up, West Point, a few miles down, and part of the port of Richmond, and recently Newport News, are used as the deep water shipping outlets. The three largest flour mills of Richmond have a total capacity of about 4,000 bushels of flour daily, but at present their limit is not, as a rule, fully taxed. Of a high grade, the flour has always held its own place in the South American markets, which had, however, during the four years the port was closed, to buy elsewhere. Thus some of the trade was lost; still, last year the shipments to Brazil from Richmond and West Point were 300,273 barrels.

The oat crop of this year is known to be very large. It is estimated at 480,000,000 bushels, or something less in quantity than wheat. Except for the partial failure of corn, oats would be cheap, but under present circumstances they will all be needed before another harvest.

Elevator News.

An elevator and warehouse are being built at Nunda, Ill.

Eli Clayton, of Walnut, Iowa, has sold one-half interest in his elevator.

S. Money Penny, dealer in grain, etc., at Mattoon, Ill., has gone out of business.

W. H. Crawford, grain dealer at Latimer, Iowa, has sold out to Chas. L. Clock.

W. A. Waterman, grain and agricultural implement dealer at Newell, Iowa, has sold out.

The Farmers' Mill & Elevator Co., at Willis, Kan., have their elevator nearly ready for operations.

Crawford & Cook, grain dealers at Minburn, Iowa, have dissolved partnership. Bligh & Cook succeed.

The St. Paul Railroad Company have just completed an elevator at Beloit, Wis., of 30,000 bushels capacity.

L. P. Mason & Co., Longmont, Col., hay and grain dealers, have sold out. Fesler Bros. continue the business.

Foreman, Ervin & Co., commission merchants of Chicago, Ill., have dissolved partnership. W. H. Foreman succeeds.

H. S. Carpenter & Co., grain commission dealers, Detroit, Mich., have dissolved partnership. Muller & Worcester succeed.

H. Sandmeyer & Co., of Peoria, Ill., have furnished the buckets, loading spout and elevator bolts for the Louisville, Ky., elevator.

It is said that Washer & White, of Atchison, Kan., handle more grain from the Santa Fe road than any one firm in Kansas City.

The embezzlements of R. Sysk, of Philadelphia, Pa., the missing grain broker, are said to exceed \$15,000. His victims are after him.

H. Sandmeyer & Co., of Peoria, Ill., have the contract to furnish the N. Y., L. E. & W. Railroad elevator with the bifurcated grain spout.

M. Sellhorn has bought new machinery of the Williams & Orton Manufacturing Company of Sterling, Ill., for his elevator at Boone, Iowa.

Duluth (Minn.) has three elevators with a storage capacity of 2,750,000 bushels, and handled of the crop of 1881, 3,069,524 bushels of wheat.

H. Sandmeyer & Co., of Peoria, Ill., furnished the buckets for the Evansville, Ind., elevator, built by Bartlett, Kuhn & Co.

James H. Barney, President of the Baltimore Warehouse Co., was found dead in bed on the morning of Dec. 10. He was 62 years of age.

Two elevators filled with grain at Webster City, Iowa, were destroyed by fire December 2. They were owned by John Mattice and Ira Packard.

Messrs. Seiberling Bros., of Akron, Ohio, lately placed their order with E. P. Allis & Co., of Milwaukee, Wis., for a 24x28 Reynolds-Corliss engine.

The storm of Nov. 24 damaged two floating elevators at Buffalo, and sunk the floating elevator "Little Giant" at Chicago, involving a loss of \$15,000.

W. C. Spencer, a prominent grain buyer of Waukegan, and second son of A. T. Spencer, of Chicago, died on November 25th of typhoid pneumonia.

The Williams & Orton Manufacturing Company, of Sterling, Ill., have furnished machinery for the elevator at Cherokee, Ill., built by S. W. Hayward.

A new grain and commission firm has been formed at Hastings, Minn., consisting of J. H. Heath and L. A. Cobb, under the firm name of Heath & Cobb.

E. P. Allis & Co., of Milwaukee, Wis., have recently sold to Mr. Ferd. Schumacher, Akron, Ohio, a pair of 22x48 Reynolds-Corliss engines for his new mill.

Mr. J. V. Farwell, Chicago, Ill., recently purchased a 24x48 Reynolds-Corliss engine from E. P. Allis & Co., of Milwaukee, Wis., to drive an electric light plant.

The Great Western Manufacturing Company of Leavenworth, Kan., are building an elevator and corn-shelling machinery for Henry Stanley, of Circleville, Kan.

The Great Western Manufacturing Company of Leavenworth, Kan., are making machinery for an elevator at Cherryville, Kan., to be built by S. A. Brown & Co.

J. D. Robertson is building an elevator at Jewell City, Kan., the machinery being furnished by the Great Western Manufacturing Company of Leavenworth, Kan.

The Pond Engineering Co., of St. Louis, Mo., recently put in a 12x30 Reynolds-Corliss engine from E. P. Allis & Co., of Milwaukee, Wis., for John Schaar, of Grand Island, Neb.

The Great Western Manufacturing Company of Leavenworth, Kan., are furnishing the machinery for a new elevator being erected at Fairfield, Neb., by the Fairfield Elevator Co.

E. M. Snitzer & Co., commission merchants of St. Louis, Mo., suspended November 18th. The firm was short on November and year corn, and could not meet calls for margins.

C. W. & E. S. Richards, grain brokers in this city, have failed, the amount for which is not yet known. Their losses are said to have been on corn bought for Southern shipment.

A Cape Vincent firm propose erecting a new grain house at Kingston, Ont., capable of holding 100,000 bushels. Kingston is to be made the collecting and distributing point in Canada.

At Riddott, near Freeport, Ill., the safe of Smith & Porter, grain dealers, was blown open and destroyed by burglars on the morning of December 11. Nothing of value was found by the burglars.

H. Sandmeyer & Co., of Peoria, Ill., have the contract to cover the new Union elevator at that place with corrugated iron and tin. This is a million bushel elevator, and requires 1,400 squares of iron and tin.

R. C. Hunter, a member of the Chamber of Commerce, Milwaukee, Wis., died November 12th at the Kingston (Ont.) Insane Asylum, a raving maniac. Softening of the brain was the cause. He was 36 years of age.

There is under construction a new freight steamer for the Duluth and Buffalo trade, which will be of 2,500 ton burthen, or a capacity of 80,000 bushels of wheat. She will cost \$135,000, and be launched next summer.

D. W. Coolidge, commission merchant in grain at Portland, Me., is reported to have failed. His liabilities are probably \$100,000. Inability to obtain money due from a St. Louis firm is said to be the immediate cause.

Solomon Kaufman, a retired grain merchant of Canton, Ohio, suddenly dropped dead while walking in the street, November 25th. He was 75 years old, and apparently in good health. Paralysis of the heart was the cause.

An arrangement has been made at Montreal by the Grand Trunk and Montreal warehouse for storing wheat during the winter that is intended for shipment in the spring. Through rates from the West to Liverpool will be given.

The Great Western Manufacturing Company of Leavenworth, Kan., have taken the contract for furnishing the machinery for the large elevator in that city belonging to the Kansas Central Railroad Co. This is one of the largest elevators in the State.

The L. C. Porter Milling Company of Winona, Minn., have purchased one of the Coker power shovels made by the Webster & Comstock Manufacturing Company of this city, for unloading grain from cars, and have attached it to the machinery of their large elevator.

The elevator and flouring mill of F. S. Johnson & Co., at Milford, Neb., were burned recently. There were about 5,000 bushels of wheat in store, which was entirely destroyed. The total loss was over \$100,000, fully insured. They will be rebuilt at an early day.

Reports from fifty points in Kansas, covering every wheat district, show that the acreage sown to wheat the past fall is slightly in excess of that of last year. The continued dry weather in the early season retarded the sowing, but the favorable late fall has put the plant in fine condition.

Mr. Geo. A. Weiss, son-in-law of Geo. Schneider, President of the National Bank of Illinois, will erect on the corner of Ashland avenue and Clybourn avenue station a first-class elevator and malt house, at a cost of over \$100,000, with a capacity of about 500,000 bushels. The plans are all completed.

Thomas J. Costello, employed in the building of the mammoth new elevator at Peoria, Ill., on December 6th, fell from a temporary floor on which he was at work to the bottom of one of the grain bins, a distance of 45 feet, and was instantly killed. He was unmarried. The coroner's verdict exonerate the contractors from blame.

Mrs. Edith Martin, daughter of Peter McGeoch, the well-known grain speculator, died at the residence of her father in Milwaukee, Wis., November 14th, 26 years of age. While in the East in June she contracted a malarial fever, which terminated in quick consumption. She was the wife of James Martin, her father's book-keeper for six years.

The Williams & Orton Manufacturing Company of Sterling, Ill., have been supplying some additional machinery for the elevator of Bruce & Van Sann at Greene Iowa, and the elevator of Dysart & Street at Dixon, Ill., with a large amount of shafting, pulleys, couplings, boxes, grain spouts, etc., for the Woodman Linseed Oil Co. of Omaha, Neb.

A Dubuque dispatch of Nov. 21st says: "The grain men of this city to-day received a letter from Mr. Tucker, General Freight Agent of the Illinois Central Railroad, stating that he would modify the recently adopted freight tariff on grain to this point by restoring the old rates for grain shipped from points beyond seventy-five miles west, but that the new rate would hold from points this side. Since the new tariff was enforced, about two weeks ago, the grain business of this city has almost entirely ceased. Everything is now going through to Chicago. A committee of leading men will leave for Chicago this evening to obtain, if possible, still more favorable terms from the Illinois Central Railroad."

Fire consumed the grain elevator at Waunaker, Wis., ten miles north of Madison, on the evening of December 11. The loss on building and contents was about \$10,000; insured for half that amount. The building was owned by M. D. Stevens, of Chicago, who lately refitted it with new machinery. The fire is supposed to have been the work of an incendiary.

Le Quotidien, of Levis, Quebec, announces that Mr. Dobell has asked the town corporation of Levis to exempt from taxation during twenty years a grain elevator which he proposes to build on that side of the river, and that the corporation has consented. Mr. Dobell has gone to England to organize a company, expecting to commence building in the spring.

William M. Pitts, Chairman of the Board of Supervisors of Piatt County, Ill., was instantly killed on the evening of December 8. While engaged in his grain elevator at Cerro Gordo, his clothing was caught and wound around some rapidly moving machinery, hurling him violently against a beam, breaking his skull and scattering his brains. He was about 50 years of age.

Mr. Ross, superintendent of the construction of the new elevator for the T. G. & B. Railway at Warton, Ont., is pushing ahead the work. Its capacity is to be 250,000 bushels, or 50,000 larger than the Midland elevator, and 100,000 larger than the one at Collingwood. It is to be fitted with all the modern improvements, and when completed will be one of the finest elevators in the province.

The Winona Mill Company have lately adopted the new system of unloading grain from cars by a Webster & Comstock steam shovel. This is a very simple contrivance, consisting of a wooden scraper attached by chains to spools on a revolving shaft. A man carries the scraper from the door to the end of the car; a small governor drops, making a connection with the revolving shaft, which winds the chain on the spool and draws the scraper to the door. This makes a saving of time and expense.

C. A. Bamber, of Iowa Falls, Iowa, builder and contractor for elevators and elevator machinery, writes that improvements throughout Iowa, in the elevator line, are quite brisk. Since harvest, Mr. Bamber has improved and remodeled five elevators. At present he is putting a 30-horse power engine and a large amount of machinery into the elevator at Allison, Iowa, owned by the D. & D. R. R., and leased by Mr. James Dobbins, who is an extensive grain and stock dealer along the line. Mr. Bamber is putting in the Harrison Conveyor at this place, and expects to put it into several other Iowa elevators in the course of a few weeks. Mr. Bamber writes us that the corn crop in that section is much better than was anticipated, and is coming forward in good quantities. Mr. Bamber, like most everyone else, is pleased with the AMERICAN ELEVATOR AND GRAIN TRADE.

Mr. R. E. Sculthorpe, grain dealer at Port Hope, Ont., was struck by a car of the Midland Railway near his own elevator and fatally injured on the morning of November 20th. He was trying to remove a temporary platform erected across the track, on which a number of cars were being shunted to Mr. King's elevator. Having jerked the platform away, he had not time to recross the track, and so stood up close against his own elevator. The first car passed all right, but the second projected sufficiently to strike him upon the left shoulder, and crushing the upper part of his arm to a jelly. He only survived four hours. The deceased was one of the largest real estate owners in that part of the country, and an extensive exporter of grain and peas to the United States and England. He was a generous and public-spirited man, and his death will be deeply felt in the social as well as the business circles of the town.

Messrs. Chas. Kaestner & Co., of Chicago, Ill., have put in during the past thirty days the Kaestner Patent Portable Grist and Feed Mills for the following parties: True, Brunkhorst & Co., Chicago, Ill., one 36-inch mill; P. C. Powers, South Amana, Iowa, a 24-inch mill; R. H. Teeples, Toxa, Ill., a 20-inch mill, elevator machinery and corn-sheller; H. Rosenberg, St. Ansgar, Iowa, a 16-inch mill; R. G. Schuler & Co., Minneapolis, Minn., a 24-inch mill and sheller; Sidle, Fletcher, Holmes & Co., Minneapolis, Minn., a 30-inch mill; N. K. Fairbank & Co., Chicago, Ill., a 30-inch mill; Wabasha Elevator Co., Downsville, Wis., a 30-inch; Eckbohm, Dross & Co., Warsaw, Ill., a 16-inch; Union Iron Works Co., Decatur, Ill., a 16-inch; W. W. Mitchell, Stevens Point, Wis., a 30, inch; P. G. Peterson, Iola, Wis., a 20-inch; John Arps, New Holstein, Wis., a 16-inch; Farewell & Wilburn, Sibley, Iowa, a 20-inch; King & Henry, Clarksville, Iowa, a 24-inch; Wm. Beuring, Portsmouth, Iowa, a 16-inch; Corey Bros., Lehigh, Iowa, a 16-inch; E. A. Pillsbury & Co., Minneapolis, Minn., a 24-inch; Pray Mfg. Co., Minneapolis, Minn., two 16-inch, two 20 inch, one 24-inch and one 30 inch mill.

Barnes & Magill report that they have completed, or have in course of construction, the following warehouses and elevators in Dakota: At Mayville and Hunter, have doubled the capacity of their elevators at those points; at Arthur, have added an elevator to the warehouse; have increased the capacity of the elevator one-third at Valley City and added a warehouse to same; at Hawley they are erecting a new elevator to replace the one destroyed by fire; at Tenney, have completed a new steam elevator opposite the Barnes & Tenney farm; at Verndale they have remodeled their warehouse into an elevator. Along the Northern Pacific and Black Hills line they have been pushing work with the energy for which they are noted, and have built elevators at Vining, Battle Lake and

Underwood; they also report having shipped lumber for an elevator at Wahpeton, which is to be finished in time to enable them to handle a large portion of this season's crop. Along the line of the Fargo and Southwestern they have shipped lumber for an elevator at Horace, and the new elevator at Davenport has been completed and is ready for business. They are also hauling lumber from New Buffalo for on elevator at Sheldon, and as soon as a location can be selected will begin the construction of an elevator at Colter. They have completed the elevator at New Buffalo, and are receiving grain daily there.

The Chicago Times of a recent date contains the following: "Considerable consternation prevails in the Southwestern Railway Association on account of the large wheat traffic which is being diverted from the pool to Minneapolis. Instead of the wheat from Kansas and Nebraska coming direct to Chicago to market, it is going in very large quantities to Minneapolis, via the Chicago, St. Paul, Minneapolis & Omaha road, where it is turned into flour and sent East by way of one of the three lines out of Minneapolis. Heretofore the enormous wheat crop of Dakota and Minnesota has been more than sufficient to supply the mills at Minneapolis. It is stated, however, that one of the reasons for the change in the wheat traffic is that the Dakota crop has not yet been put on the market, being held for higher prices, while the wheat crop of the Southwest has been freely marketed. It is not just plain how the Southwestern roads are to regain their waning prestige in the wheat carrying trade. The unequalled water power and milling advantages of Minneapolis are at the bottom of the change. The distance from the Southwest via Minneapolis to the seaboard is much greater than via Chicago, but it is stated that this is entirely counterbalanced by the fact that the wheat goes East in a more concentrated form. Whether the wheat traffic will resume its old channels as soon as the Dakota crop is thrown on the market, is a matter of considerable interest to the Southwestern roads. In the meantime it is not improbable that some action will be taken to secure the immediate control of the traffic."

MORE ELEVATORS FOR BOSTON.

A movement has been started in Boston which, if successful, as it probably will be, is calculated to enhance the commercial prosperity of the city in no small degree. One of the great obstacles, says the Journal, to the growth of Boston's grain trade with Europe has been the lack of large storehouses, where grain could be stored and ready for shipment on a moment's notice. The delay in filling orders from Europe has worked to Boston's disadvantage. To supply this deficit several enterprising gentlemen propose to establish a corporation with a capital of a quarter of a million of dollars as a nucleus for the erection of a large storehouse and the purchase of wheat, corn and other exportable grain in large quantities. The enterprise is in the hands of strong capitalists, who express confidence in the success of their scheme.

FREE CANALS AND CANAL IMPROVEMENTS.

One of the notable features of the recent election in this State was the enormous vote in favor of entirely abolishing tolls on the State canals. For a long time the great food staples and some other commodities have been on the free list, and latterly all the West-bound freight has been exempt from tolls. Under the new law the Erie Canal and its tributaries will constitute a free waterway the whole length of the State, from the Hudson River to the Great Lakes, for eight months of the year. The canals give employment to about 6,000 boats.

The object of the abolition of tolls is to increase the traffic of the canals, so as to make them a more potent factor in solving transportation problems, and in helping to maintain the commercial supremacy of New York. How far the end aimed at will be furthered by the change remains to be seen. The inability of the canals to be the dominant factor in controlling the charge for transportation across the State, and in determining the course of trade in competition with railways, however, would appear to be due less to the amount of tolls hitherto demanded than to the inability of the canals to meet promptly and parallel the improvements in transportation introduced by the railways. In carrying capacity and economy in transportation the railways are progressive, while the canals are, or have been, practically stationary.

As Mr. Robert Taylor, of this city, has pointed out, the Erie canal boat, towed by two horses, and the 20-car wheat train hauled by a 30-ton locomotive, were for many years equivalent units in wheat transporting capacity, with the advantage of greater economy in favor of the canal.

"So long as this continued the canal was the regulator of grain freight rates, but as the volume of grain trans-

portation increased, railway improvement was stimulated, and the advent of heavy steel rails suggested better ballasting of the road-bed and heavier and closer laid ties. Then came the 70-ton Mogul locomotives, which could fairly fly with forty cars, each containing 500 bushels of wheat—a train load of 20,000 bushels—when the railroad became the regulator of grain freight rates, being able to carry at much lower prices than the canal could possibly carry at, even at 2½ cents, if necessary, and make money."

To raise the canals to their old commercial rank two things are proposed. One is to make the Erie Canal throughout a ship canal—a costly undertaking, and one that might prove the reverse of beneficial either to New York or to the cities along the line of the canal, as the actual benefit of the change would fall rather to the producers and shippers of the far West than to the people of New York.

Another and more reasonable proposition is to increase the carrying capacity of the canal by improving the existing lock-gates. The old-fashioned, slow-moving swinging gates are still used. By a change to lift gates, which could be done without great expense, the available length of the locks would be increased by 35 feet, and the canal boats might be made 130 feet long instead of 97 feet as now, with a proportional increase in their carrying capacity, or from eight thousand to ten or eleven thousand bushels of wheat. The cost of operating the larger boats would be little, if any, greater than for the boats now in use. With improved lock gates, it is further claimed, the carrying capacity of the canal might be five times what it ever has been.

Touching the proposition to abandon the canals entirely as having outlived their period of economical usefulness, it is urged that water carriage remains, and is likely always to remain, an important commercial factor, even where railroads are most abundantly developed. Proof of this is seen in the large use of the great canals of England and Scotland, and in the efforts which the more advanced European states are making to extend their facilities for water carriage. Thus in France 74 per cent. of the domestic commerce of the country goes over the canals, and efforts are making to largely increase the capacity of such artificial waterways. Germany, likewise, has entered upon the work of enlarging and improving the 2,000 miles of canals within the limits of the empire, and Holland and other states are spending large sums for a like purpose.—N. Y. Exchange.

VENTILATING CORN CRIBS.

A correspondent of the Cincinnati Commercial relates his experience in ventilating corn cribs in the following: We have cribbed great quantities of corn before many of our neighbors would begin husking, and yet we have no moldy corn. We make ventilators to reach from the floor to the roof. Our floors are eighteen inches from the ground, so as to secure perfect ventilation underneath. We set ventilators where the corn falls from the scoop as it is thrown in at the windows, since at that point in the crib the corn packs closely and the shattered corn and silks and husks and pieces of leaves and tassels that more or less will be found in every load will accumulate, be one ever so careful, and prevent free circulation of air through the mass. Where the farmer helps to husk his own corn, and is untiring and persistent, he can keep out husks, and silk, and trash; but when several teams are at work, and each gang of men is expected to crib a given amount for a day's work, we may say it is impossible to keep out the trash, which keeps corn from drying out freely, as well as brings in with it much moisture.

In such cases, then, we must have more ventilators, that is, they must be placed nearer together. In our crib that is six feet wide, and long enough to hold 3,000 bushels, we have windows every twelve feet for throwing corn. Three feet back from, and directly in front of them, we place the ventilators. They are not in the way in scooping in the corn, and there the pile of corn is always the highest and most packed, and from that point each way the corn rolls down and is clean and loosely packed farthest from the ventilators. The heating that always starts up in a crib causes an upward draft through the ventilators which carries off moisture and reduces temperature to the saving point.

How do you make the ventilators? The distance from floor to roof is fourteen feet. We rip out four strips three inches wide and fourteen feet long. We then make four frames of inch boards four inches

square. To these four frames we nail the four long strips, one on each side. This leaves a space of about two inches between the strips, through which the corn will not pass. We bore holes in the floor where the ventilator is to sit, and put up the ventilator, fastening to the floor and roof so it will keep its place. The cost is trifling, but the device is satisfactory in its results. We have seen men throw rails in cribs of wet corn to let the air in. If the rails are set in perpendicular they do some good, as the heated air passes upward beside them, but if placed in horizontally they are of little value, as they do not work with the ascending gasses struggling to pass upward. There is no excuse for a great crib of moldy corn. By such a device one can begin to crib corn a week earlier than without it. That week's gain, too, on some of the bottom lands when overflows come may save the crop. These ventilators cost little, occupying little space in the crib, and yet let off vast quantities of heat and moisture from the pile of new corn.

THE NEW CHAMBER OF COMMERCE AT BALTIMORE.

The new Chamber of Commerce at Baltimore was formally opened on November 22d. Business was generally suspended to allow the members of the Corn and Flour Exchange to take part in the ceremonies. The handsome new building has just been completed at a cost of \$300,000. It covers 16,000 square feet of ground in the heart of the city, is four stories high, and built of granite, brick and iron. There are forty-eight offices on the lower floors. The exchange hall on the fourth floor is forty feet high, and covers 12,000 square feet of surface. The membership of the Exchange is now over 800, all of whom assembled at the old hall where "Auld Lang Syne" was sung by 600 voices with the accompaniment of a brass band. This was followed by a Christmas frolic of flour package throwing by the younger members. A procession was then formed of the members, commanded by Brig. Gen. J. R. Herberts, which marched with music to the new hall. There were present representatives from the commercial bodies throughout the country, including the Presidents of the Boards at all the great centers of Trade, as well as leading merchants and railroad officials. After the formal transfer of the building, Mr. Wm. S. Young, President of the Exchange, delivered a commemorative address replete with interesting and amusing incidents of the early grain traffic and its primitive appliances.

Speeches were also made by the Governor of the State and others. A grand banquet was given in the evening at the Merchants' Club rooms. The floral display was magnificent, and the menu and toasts in keeping with the occasion and the varied localities represented, in which wit and humor found ample material. The Baltimore Corn and Flour Exchange originated in 1853, and has successfully fulfilled the objects of its organization.

WHEAT NEEDS.

There have been many statements published as to the needs and surplus of various countries, some of which we have published from time to time for the information of our readers. Amongst the latest we find Beerbohm's:

Countries.	Imports required.	Probable surplus.
United States and Canada, qrs.	.....	23,000,000
United Kingdom.....	15,000,000	.....
France.....	3,000,000	.....
Belgium.....	1,500,000	.....
Germany.....	1,000,000	.....
Holland.....	750,000	.....
Austria-Hungary.....	.....	3,000,000
Russia and the Danube.....	.....	7,500,000
Switzerland.....	1,800,000	.....
Italy.....	500,000	.....
Spain and Portugal.....	2,500,000	.....
Austria and Chili.....	.....	1,500,000
India.....	.....	.....
West Indies, China, etc.....	2,250,000	.....
Sundries.....	.....	250,000

Total quarters..... 28,000,000
Equal in bushels..... 224,000,000

This leaves a surplus of 82,000,000 bushels. It does not estimate the United States surplus as it has been figured in the New York papers, which claim a great deal more. It is, however, about 12,000,000 bushels more than the estimate of the *Bulletin des Halles*, of Paris, which we published in the beginning of the month. Eight million bushels, or even twice the amount is not very large compared with the crop of the world, and a very slight percentage of increase in consumption would cause it to ultimately disappear.—San Francisco Journal of Commerce.

Legal Notes.

Commission Merchants.

When advances are made by a consignee or commission merchant, a consignor can not direct a sale at his pleasure. In such case the consignee, in the absence of an agreement, has the right to sell at such time as he sees proper to the extent of and in payment of his advances. *Butterfield & Co. vs. Stephens*, Supreme Court of Iowa.

Options.

The option as to the delivery of merchandise purchased is not illegal if there be an agreement to make actual delivery. The optional contracts, which are void, are such as do not contemplate the actual delivery of the commodity purchased, but rather contemplate that the subject of the contract is not to be delivered. *Gregory vs. Wattowa et al.*, Supreme Court of Iowa.

Grain Speculation.

Defendant, a grain dealer in Cresco, Iowa, having a regular account with plaintiff as a commission merchant of Milwaukee, employed the latter to buy and sell grain for him "in form," for future delivery and account for profits, which latter transactions were kept separate on the books and called in the correspondence of the parties "scalping," "deals," "options," "speculating deals," etc. And suit was brought to recover a balance on such account against defendant. Held that such employment of plaintiff by defendant was a gambling transaction, and their contracts gambling contracts.—*Supreme Court of Wisconsin*.—*St. Louis Commercial Gazette*.

Indorsement.

A negotiable note indorsed before maturity is not subject in the hands of the indorsee to a set off, in favor of the maker, of a debt due by the payee at the time of making the note. The law presumes that the holder of such paper is the owner and took it for value and before dishonor, and that an undated indorsement of the same was made at the date of the note, or at least antecedently to its becoming due. And if the defendant would avail himself of any defense that would be open to him only in case the note were negotiated after it was dishonored, it is incumbent on him to show that the indorsement was in fact made after the note was overdue. *Tredwell vs. Blount*, Supreme Court of North Carolina.

A Decision on Futures.

In the Appellate Court in this city lately, the case of John C. Collierwood against McCrea and others, which is classed among the disputes arising out of Board of Trade transactions. Suit was brought in the Superior Court of the county to recover \$505, losses on a deal of 20,000 bushels of wheat, and \$50 for commissions, and a verdict for \$556.25 obtained. The case was carried to the Appellate Court on the question whether the trading was to be in differences or a delivery and receiving of goods. On the general question the Court says: "We have occasion so frequently to express our views of the law applicable to cases of a similar character to the one now presented as to render it unnecessary to enter upon the discussion of the subject here." After quoting *Tenner v. Foote*, 4 Brad., 594; *Webster v. Sturgis*, 7 Id., *Beveridge v. Hewitt*, 8 Id., 467, in which it was declared that transactions where there is to be no delivery or reception of goods, the difference being paid in money, come within the statute against gambling and are void, the Court goes on to say: "From the views expressed by us we feel no inclination to recede, believing them to be wise and salutary, and calculated to conserve not only the best interests of the community at large in tending to check the prevailing widespread mania for gambling speculations, but also to restrain the members of a great, and doubtless useful as well as necessary, association of business men from permitting themselves to become instrumentalities in a course of dealings which the law denounces as contrary to public policy, illegal, and void; and we think it may now be considered as settled by the current of adjudicated cases that contracts like those above referred to can not be made the basis of any right of action in a civil suit by or against either party to them." In the case before it, the Court failed to find any evidence of an intention of delivery, and reversed the judgment of the Court below and remanded the case.

A Wheat Transaction.

In the Appellate Court of the Chicago District, one of the cases worthy of note, decided the past month was that of McGeoch & Co., appellants, against Stephen G. Hooker, appellee. The latter has been dealing on the Board of Trade through McGeoch & Co. during 1880 and 1881, and on May 2, 1881, bought 10,000 bushels of June wheat at \$1.03½. The market went down and, as Hooker claimed, his brokers sold out his wheat at \$1.02½ without giving him any notice or an opportunity to put up more margins. The wheat subsequently went up to \$1.15 per bushel. Hooker claimed his agents should be held responsible for the profit he might have made, and sued to recover it. He was the only witness for himself, and was only asked if McGeoch & Co. owed him anything. He replied they did owe him \$3,437.81. The defendants testified they did not owe him anything; that they had a full accounting and settlement. Also that they had told Hooker that his margins were getting pretty thin and had notified him that they should be obliged to close out his deal, to which he reluctantly assented. Hooker received a judgment for \$3,437, and McGeoch & Co. appealed. The Appellate Court held that Hooker had entirely failed to make out a case. He had merely sworn to his conclusions as to what was due him. He should have given the facts and left it to the jury to say as to whether the defendants owed him anything. The defendants also testified with equal definiteness that they did not owe him anything, but there was evidence tending to show that they notified him of their intention to sell him out, to which he reluctantly assented, and that immediately after they did so they sent him an itemized account, to which he made no objection for over two months—until he saw that wheat had advanced. By so long a delay he must be held to have acquiesced in the action of his agents, and could not be allowed thereafter to retract his assent and sue for subsequent profits. The judgment would therefore be reversed.

THE HOOSAC TUNNEL ELEVATOR.

The Hoosac Tunnel Dock and Elevator Company completed their new elevator at Charlestown, Mass., about a year ago. They have three buildings located at different points, which give them six acres of floor room. All are provided with hydraulic elevators. The new grain elevator is 157 feet in length, 138 feet high and 80 feet wide, and has a storage capacity of 6,000 bushels of grain. Five cars are unloaded at a time, and 150 cars may be transferred daily. The steam shovels, two to each car, will empty a car in about eight minutes. From the cars the grain is carried directly to receivers which are hung on scales, weighed and carried to the storage bins, 90 in number and from 54 to 70 feet in depth. From these bins, if it is desired to load the grain upon teams, the sacks are filled and shot out to the teamsters upon rubber belts; but if the grain is for export, it is brought to the first floor and again elevated into bins holding about 500 bushels or one car load each. From these bins, pipes carry the grain to the conveying belt, an eight-ply rubber belt 1,035 feet in length and three feet wide. Upon this belt the grain is carried to any desired point along the dock through a gallery provided with convenient openings, at which openings it is transferred by flexible pipes into the holds of the waiting vessels. This belt is capable of handling from 5,000 to 8,000 bushels of grain per hour. The whole structure is provided with an efficient system of fire extinguishing apparatus operated by hydraulic power. Seven machines of the Western Electric Light Company are very soon to be put in in place of the smaller machine now running, and when complete will give 70 lights, affording ample illumination. The engine operating this immense amount of shafting, elevators, belts, etc., is a Babcock & Wilcox, of 500 horse power, having cylinders 24x48 inches. The main driving belt is of rubber, 42 inches wide and 300 feet in length. The steam is furnished by four steel boilers each 16 feet long and 72 inches in diameter, set with the Jarvis furnace. The engine and boiler rooms present a clean, tidy appearance highly creditable to the men in charge, who are intelligent mechanics. The whole is under the superintendence of Mr. I. J. Flaggs.

In Michigan the corn crop this year was better than any seen in that State in several years. In many localities the grain is full, hard and dry, and the ears are large. The fodder has been cured in excellent condition.

Communicated.

A Question of Figures.

Editor American Elevator and Grain Trade:—Will some one tell me how to calculate correctly storage rates on grain received in an elevator for any one party when said party is receiving about 2,000 bushels daily and shipping out about 1,400 bushels every second or third day, and carrying forward a large amount for five months' storage? Our rates are 2¼ cents first fifteen days and one-half cent each additional fifteen days, and five cents for five months' storage.

Yours,

NORTH STAR.

A Correction.

Editor American Elevator and Grain Trade:—I see in the notice which you gave my patent that the object was misnamed. I have a patent on ventilators for grain, fruit, hay, etc., No. 256,963, issued April 25th, 1882, which has for its object the ventilation of hay mows, grain bins, or receptacles for cereals of various kinds, for the purpose of preventing heating and decomposition. The special feature of my invention consists in a straight perforated tube having a straight penetrating point, and is composed of one or more sections. In patent No. 266,083, of the date Oct. 17th, 1882, is claimed a spiral point, which may be attached to the perforated tube, and by giving this tube a rotary motion by means of a two-handed wrench, it will penetrate hay or grain. This, perpendicularly placed in grain or hay, one to each one-and-a-half square feet, is sufficient to prevent heating. This is a grand success in the saving of sweet potatoes, fruits, cornmeal, wheat, shelled corn and corn in the ear.

Yours,

L. T. Bow,

Burksville, Ky.

THE PROPOSED FLORIDA SHIP CANAL.

The men who are engaged in the organization of a Florida ship canal will meet for an organization in New York next Saturday. It is proposed to organize with a capital of \$800,000. The leading capitalists engaged in the enterprise are Germans. They are represented in this country by two New York lawyers, Messrs. Myers and Jacobs. Senator Mahone, Gen. Ben. Butler and Gov. Cameron, of Virginia, are said to be members of the syndicate. Butler and Mahone are both talked of for president of the company.

GRAIN EXPORTS FROM NEW YORK FOR FIVE YEARS PAST.

The exports of grain from the port of New York during the present year have been much smaller than they were in 1881 or 1880. A statement has just been compiled for the New York Produce Exchange, showing the quantity sent abroad during the ten months which will have elapsed from the 1st of January until the 31st of October, as follows:

Year.	By Steam.	By Sail.
1878.....	28,151,591	47,493,409
1879.....	33,847,952	52,046,703
1880.....	43,955,065	57,203,079
1881.....	46,212,218	17,738,421
1882.....	34,500,000	5,200,000

THE CAPE COD CANAL.

The Cape Cod ship-canal is to be pushed through after all, a new company having been formed and another charter applied for. It was stated to-day that three-fourths of the proposed company are New York capitalists, and the remainder are Boston gentlemen. They will commence operations under the most flattering auspices, having at their command millions of dollars, and when they commence actual operations they will undoubtedly carry the thing through. The trouble heretofore has been lack of capital, one that, together with the way the whole affair was managed, rendered it impossible to carry the project through. Residents living along the line of the canal have been much encouraged by strangers who have within a few days visited Sandwich and many localities along the line for the purpose of making such preparatory arrangements as may be required.

CORNERS.

BY F. B. THURBER.

The growth of monopolies and the aggressions of associated capital upon the interests of the people have of late made thoughtful men feel that some additional safeguards were necessary. New methods of handling the great staples of commerce have given rise to new methods of dealing in them, and as with steam roads, the advantages have been accompanied by attendant evils which require checking.

The classifying or grading of goods has given rise to a system of dealing in "futures" which means much more than sales for future delivery, and, in reality, indicates a gigantic system of gambling which has infected a large portion of the community. This is not only demoralizing to those who participate in these practices, but it affects the material interests of both producers and consumers, as well as those of legitimate traders, by forcibly setting the clock hands of value back and forth and alternately making all of these classes pay tribute to the combinations which manipulate first one and then another of the great staples which enter into daily consumption.

The Standard Oil Company is an example; here is a corporation which, according to testimony recently given in Pennsylvania, began in 1872 with \$1,000,000 capital, which was subsequently increased to \$3,500,000, and on this latter capitalization it paid dividends in 1880 amounting to \$10,321,812, and it practically controls and fixes the value to the consumer, on a staple ranking third in the list of our Nation's exports. Through its speculative manipulations it has within a few weeks more than doubled the price of crude oil, and its profits thereby are variously estimated at from \$20,000,000 to \$40,000,000.

A speculative combination raised the price of wheat in 1879 from \$1.02 per bushel in August to \$1.44 in December, and at various times since, the same system of trading has alternately raised and depressed prices to such an extent as to seriously demoralize legitimate trade—three hundred vessels at one time being idle in the port of New York waiting cargoes which the greed of the speculators would not permit to be loaded, and many of which were obliged to seek cargoes elsewhere.

Another combination obtained control of most of the available supply of pork in the country and then advanced prices so that the consuming public had to pay fifty per cent. more for its supplies; these transactions were undertaken by men who had first attained great wealth largely through special favors from railroad corporations.

These operations are popularly known as *corners*, and are effected through sales for future delivery, but getting men to sell in many cases what they do not possess or expect to possess—with the understanding that only "margins" will be required and "differences" will be settled instead of actual delivery of the merchandise being required. They are usually accompanied with much misrepresentation, and indeed false reports are a part of the stock in trade of those who participate in them. They are less fair and more demoralizing than a game of cards, for with the latter there is no misrepresentation and only the chances of the game are against the player, while corners may be compared to a game of cards in which both before and after the bets are made the cards are stocked against the player. Why should gambling with cards be prohibited by law, and the gambler or the seller of a lottery ticket be subject to arrest when such things are tolerated? Corners are made unlawful by special statute in the State of Illinois, and Judge Jameson, of that State, in an opinion recently delivered, compared them to highwaymen enticing travellers into a corral and relieving them of their purses.

I would therefore make corners unlawful and educate public opinion until the law could be enforced.

I would limit speculation by prohibiting the buying or selling on "margins," and also all other gambling devices such as "puts," "calls" and "straddles."

I would prohibit a man selling what he did not possess excepting in the case of a farm or factory, where the growing crop or regular product furnished a reasonable basis in legitimate trade for such transactions. In short I would make actual delivery a basis for a lawful transaction.

Of course there will be a great outcry against this proposition from the gamblers and the brokers who profit by fostering the gambling spirit. We will be

told that trade will be driven from New York to rival cities; that seats in the Stock and the Produce and the Cotton Exchanges would be worth little or nothing, etc., etc. To this I would answer that New York prospered before these practices were tolerated and would continue to prosper without them; that the same cry was raised in San Francisco when the new Constitution of California drove out the mining stock gamblers, and for a time it appeared as if it had come true, but gradually it became apparent that the body politic was better for having sluffed off the gambling ulcer, and to-day it is generally admitted that business has settled down to a more healthy and satisfactory state than before.

No community can permanently prosper under such demoralizing influences; corrupt public morals and business suffers from increased recklessness, breaches of trust and the long list of commercial crimes which ensue, while ultimately it affects the whole body politic, and government itself.

REMINISCENCES OF THE ILLINOIS AND MICHIGAN CANAL.

Mr. Suel Foster, a correspondent of the *Prairie Farmer*, gives some reminiscences of the early history of canals in Illinois. As early as 1822, the State petitioned Congress for a grant of land to aid in constructing a canal from Lake Michigan to the Illinois River. In 1827 alternate sections, five miles in width on each side of the canal, were granted to the State for that purpose, and a like quantity to Indiana for a canal from Lake Erie to the Wabash River. Before the sale of any lands it was found that the Des Plaines River would not supply sufficient water for the summit in a dry time. In 1830, the United States made additional surveys with a corps of engineers who reported in favor of cutting down the summit to the level of Lake Michigan. The work after contract was found too expensive, and the plan to supply the summit level with water by means of steam pumps, was adopted in 1845. The canal, 96 miles in length, was opened to navigation in April, 1848, having cost \$6,785,581, which was offset in part by the sale of lands and town lots to the amount of \$4,698,520. Lieut. A. B. Foster, brother of the writer, bought 25 lots in 1831, where Chicago now stands, at the first sale after its survey the preceding year. These lots lying about the forks of the river, some on Lake street, cost him \$500. In letters home to New Hampshire he stated that the opinion of good judges was "that at the mouth of the Chicago River there would some day be an important town." He was murdered by a drunken soldier in 1832, but his mildly stated prophecy has had a magnificent fulfilment, and the present value of those 25 lots would defy all the rules of interest. This same young Lieutenant wrote home in 1830, after seeing the beautiful lands of the adjacent country, "that one third, if not one-half of the New England farmers, had better sell their farms and come West and occupy that rich country awaiting them."

Mr. Foster thinks when the Hennepin Canal is built its name will naturally be the Michigan and Mississippi Canal. It should be made, he says, from La Salle down the Illinois River to the Bureau Valley, and then, after a distance of 25 miles rise out of that river by locks. The feeder to supply water for the summit between the two great rivers should be taken from the Rock River, some distance up, involving large expense but not one-half as much as the cost of the Erie Canal from the Lake to Lockport. Mr. Foster thinks the cheapest and best route is from the summit to Rock River, down the valley of Green River, then in nearly a direct line west on the south side of Rock River to its mouth, which is deep and commodious, and thus save crossing Rock River with the Canal.

The famous Ohio farmer, John Eichlotz, whose dwelling-house was also a warehouse and granary, in which his wheat has been stored for twenty years, has just died. During that time he has sold scarcely a bushel, holding every year's crop "for a rise," which never came. Much of it is perfectly useless, and the sacks are decayed. He has kept his family in privation. This season he predicted a general failure in the wheat crop and big prices. He refused to have any grain planted on his farm, because he would haul his stock of grain to the market and did not want to be bothered with crops in the field. His family is not very sad over his death, and now will live as other people do.

STORING GRAIN FOR MILLING PURPOSES.

FROM THE "AMERICAN MILLER."

The past decade has made many changes, not only in the machinery and processes of our mills, but also in their construction and arrangement. This is true not only of new mills that have been built on the most approved plans, but also of old ones that have been remodeled to the new systems. With these improvements there has come a demand for more room in the mill building, and many millers, finding additional space positively necessary to accommodate their machinery, are arranging their buildings to obtain this room, not so much by enlarging the mill as by taking much of the work out of the mill into a warehouse or elevator. The cleaning, for instance, can be done more conveniently and economically in an elevator adjoining the mill than in the mill itself. It is a great saving of labor to have the work so divided, as one man in the elevator, with suitable machinery for handling and cleaning grain, can do the work of several men in the mill where everything is cramped for space and the necessary conveniences cannot be put in without interfering with the mill machinery. All the receiving, weighing and cleaning of grain should be done in the elevator, not in the mill. The present process of manufacturing is so intricate that the work requires the undivided attention of the miller, whose time and attention should not be taken up by other work of minor importance going on in the same building.

The advantages of having a grain elevator and storehouse in connection with a flour mill may be briefly mentioned as follows: 1st. Saving of labor. Grain can be received, weighed and cleaned in a properly constructed elevator much cheaper than the same work can be done in a mill building. 2d. By having storage room, the mill-owner is enabled to choose his own time for laying in a supply of wheat for grinding. This is an important consideration, as the current price of grain is not wholly dependent upon the crop, for disturbances in the wheat market are frequently caused by "corners" and other methods of speculation. The relative price of wheat and flour are not such as to make it prudent for any manufacturer of flour to depend upon daily or weekly deliveries of wheat for his supplies. 3d. Grain can be stored outside the mill building at one-tenth the cost that it can be stored in the mill. A storehouse for grain is much more cheaply built than any mill building. Further, a large percentage of the mills throughout the country are built of either brick or stone, and repeated experiments have proved that a brick or stone building is unsuitable for storing bulk grain. There is no elasticity about a brick house, and it will soon become battered and cracked from the constant jarring and settling of the grain. 4th. Safety to the mill machinery. Storing grain in the mill is injurious to the mill machinery. Every time a grain bin is filled or emptied the house undergoes a severe jar, and repeated shocks of this kind will invariably get machinery out of line. In the elevator the machinery rests on its own foundation, entirely independent of the storehouse. 5th. Safety of the grain in store. Grain stored in an elevator, with facilities for re-handling and cooling, is less liable to get out of order than when stored in a mill where such conveniences cannot possibly be arranged. 6th. The fire risk is less in a warehouse isolated from the mill, consequently insurance on grain in store is less in an elevator than in a mill. 7th. The grain elevator affords cheap storage for bran and coarse feed. A conveyor from the mill to the elevator disposes of the bran without moving it by hand, and the same machinery which handles grain handles bran, and it is cheaply stored in the storehouse. 8th. By having storage for grain, the mill owner is able to engage in shipping business advantageously, as he can operate his elevator cheaper than an independent elevator can be run.

As to its location, the elevator does not necessarily stand within 100 feet of the mill. On account of the fire risk it is frequently advisable to build the elevator some distance from the mill and power house. The mill and elevator are ordinarily connected by two lines of conveyors, one for carrying grain to the mill, and one for carrying bran from the mill to the storehouse. These conveyors may be either overhead or underground. The elevator is driven by power from the mill engine, or in some instances a small engine supplied with steam from the mill boiler is used to run the elevator.

The American Elevator

—AND—

GRAIN TRADE.

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A. J. MITCHELL, Business Manager,
HARLEY B. MITCHELL, Editor.

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ADVERTISING.

This paper has a large circulation among the elevator men and grain dealers of the country, and is the best medium in the United States for reaching this trade. Advertising rates made known upon application.

CORRESPONDENCE.

We solicit correspondence upon all topics of interest connected with the handling of grain or cognate subjects.

FUTURES.

The investigations of the New York State Senate Committee, which has been sitting at Buffalo, in reference to grain speculations, "futures and corners," for the purpose of learning what, if any, legislation upon the matter would be of advantage to trade, has attracted very general interest. Widely different and antagonistic opinions have been presented by parties engaged in the grain traffic called before the committee. It appears that those engaged as merchants in a large legitimate trade in grain are, in general, opposed to dealings in "futures," and consider their effects to be injurious to trade and unsettling to market values, while those whose business lies mainly on the Board of Trade consider these dealings, even when largely speculative, as an advantage to trade and essential to the fair use of capital in advance of production.

The arguments used by those who favor these transactions are based largely upon the analogies of trade in other commodities, and the principles of "advances" and bank "discounts." In the cotton trade, throughout its whole history this system of advances by merchants, banks or plantation owners, often before the crop is put in the ground, of cash or its equivalent in food and appliances, has been universal, and deemed necessary. Capital at times accepts the risks and makes advances based on the future production of lands not yet even bought, and still to be enclosed and cultivated. Such risks are, of course, great and costly to the honest debtor, but are based upon the cheapness of the soil, the rapid development of the new countries and the speedy increase of values of lands, as well as the trust in the hardy, honest industry of those to whom these advances are made. To the possessors of land or of manufacturing plant needing more capital for production or manufacture, the advance, based on future expectations or probabilities, is essential, a *sine qua non* to the creation and the actual appearance of the products of this land and machinery in the world's markets.

In a country of vast extent and immense undeveloped resources these advances of capital may multiply by the thousand, and the evidences in their various shapes of mortgages, bills, etc., be found accumulated in various hands at the great monied centers of the mercantile world. The capital has been sent out,

and is doing its work in thousands of mills and factories, on tens of thousands of farms and cattle ranches, and though failures may occur and many efforts prove fruitless, these will be but drops in the incoming flood of the productions which will surely flow through the great paths of commerce and trade as the result of this judicious advance. Suppose that at these great centers of exchange, to and from which money flows, these evidences of "advances" based on "futures" of production become the subjects of barter and speculation, and some long heads with heavy pockets grow richer, while large numbers of less shrewd men, who have foolishly jeopardised their smaller means in speculating in these bills, are hopelessly ruined, are the original objects of these advances injured or the correctness of the principles on which they were made vitiated? It is admitted that there are many features in the grain trade which are peculiar and do not fully appear in such analogies, and that the use of large amounts of capital in the hands of a few who have combined to produce a "corner" in one of our great grain markets may, for the time, be injurious to the trade, and is justly deserving of reprobation and punishment; but the cure of this evil does not consist in the destruction of a fundamental business principle whose application is essential to the welfare of the country in rendering available its productive resources.

REPEAL OF THE CHICAGO "CORNER RULE."

The Chicago Board of Trade has rescinded that portion of Rule 27 which provides for a committee of arbitration on cases of defaulted contracts. There were 900 votes cast, while the amendment was carried by only a majority of eighty. This indicates a very general interest in this matter, while the large number of opposing votes shows that the differences of opinion on the question which underlies the whole matter, viz., how best to protect traffic from the injurious effects of speculation and "corners," involve perplexing problems not readily solved. That these operations are wrong, and more or less injurious either to trade or morals, all admit; but whether any laws for their suppression can be enacted that will not either abrogate some important and essential principle of trade in the use of capital, or present modes of action more obnoxious than the evils to be remedied, is a question upon which no consensus of opinions either of the Board or of prominent business men can be obtained. Those who support the amendment, which is to take effect on the opening of the coming year, openly declare that the latter objection has been shown practically to hold against the machinery of arbitration by the Board. This act reminds the whole matter to the position of all other business transactions involving failures in contracts, to the mutual agreement of the parties or litigation.

The members of the Board have been somewhat reticent in talking with interviewers of the daily press, but have still expressed themselves very frankly as to their votes and the importance they attached to them. Mr. Chas. E. Culver is reported to have said, that in his opinion a mistake was made in rescinding this clause without providing a substitute for it, and if not corrected it would result in injury to the trade of Chicago. On the other hand Mr. Philip Armour thinks the rule was an unwise one, and its abolition a proper move. It will in his opinion double the value of membership tickets in the estimation of the business public, while trading will become again a legitimate business. It is apparent to everyone that the practical operation of this rule failed to give satisfaction to defaulting parties, as was shown

clearly in the protracted action on the July wheat operations, and the bitter antagonism of many of the parties implicated to the decision of the committee of arbitration. Perhaps there may be wisdom in the Board's returning, for a while, to the ordinary methods of law, and allowing a larger experience to dictate what special rules, if any, on its part are required to prevent these "corners" and their damaging effects on trade.

FUTURES AND THE BANKRUPT LAW.

The American people expect almost any kind of legislation from the House of Representatives, but naturally the Senate has been looked to as a conservative power in legislation. On Friday, December 8, however, that august body was guilty of a piece of legislation which was both ill-timed and silly. While the bill providing a general law of bankruptcy was pending, Senator Morgan proposed and the Senate adopted a section declaring that the fact that a person is engaged in dealing in futures in stocks, provisions, or grain, or in corners, shall of itself be sufficient ground for filing a petition in bankruptcy against such person. Of course if the allegation be sustained, the person must be adjudged a bankrupt. This amendment was adopted by a large majority, but it is not probable that the Senate was serious in such legislation. Bankruptcy is a fact, and not a theory; unless a man be in fact a bankrupt, he cannot be declared one. Because, being solvent, he engages in a hazardous business, or in one in which he may lose his property and become bankrupt, he cannot be declared bankrupt until he becomes so in fact. A man can be declared insane when he has actually become so, but not upon the mere suggestion that he is engaged in a business which at some future time may result in his becoming insane. Because persons dealing in futures in stocks or grain have sometimes become bankrupt that furnishes no reason for supposing or assuming that every person engaged in that business is a bankrupt. The simple fact of the matter is, that a man cannot be declared a bankrupt until he is unable to pay his debts. His kind of business, his business methods and personal habits have nothing to do with the question. The Senate was guilty of a curious and vicious slip when it passed Morgan's amendment.

THE MEREDOSIA ROUTE FOR THE HENNEPIN CANAL.

Mr. U. S. Hart, in the *Chicago Tribune*, replies to the objections urged to the Meredosia route for the Hennepin Canal and the charges made as to the motives of its selection. The government surveyors, he states, have thoroughly surveyed the route, under the guidance of the instructions of Congress, in order to select the one most feasible. The route selected stands upon its own merits, as the Rock Island route is the only one that has heretofore been before the people. The line is not through the middle of the Slough, but near the abandoned grade of the old Comanche, Albany & Mendota Railroad. The narrow mouth of the Slough is crossed by the bridge of the Counties of Whiteside and Rock Island, and by the bridge of the Chicago, Milwaukee & St. Paul Railroad passing into the city of Rock Island. Across the river, in Iowa, there is a level plateau of two miles width all in use, mostly higher than Rock Island, and considered one of the best sites on the river for a town, backed by still higher fine farming land. The tracks and stations of the Southwestern and Northwestern roads are near, while the Chicago, Burlington & Quincy road runs into East Clinton. The difficulties of freighting over the rapids, either up or down, affects only the Southwestern trade, but a small

fraction of which could by any means be diverted from St. Louis. The trade of the Northwest is the great desideratum of the canal.

From a common point of intersection near Anawan, the Meredosia route continues in a northwesterly direction thirty-five miles to the Mississippi, while the Rock Island route diverges into a westerly course down the Green and Rock rivers to Rock Island, thirty miles on the river southwest from the mouth of the Meredosia. Several of these miles of river travel are over rapids.

The general interests of trade will not, Mr. Hart thinks, accept such an increase of distance and expense of shipping simply to gratify the wishes of 60,000 people resident at and around Rock Island.

COMMISSIONS ON THE BOARD.

There is considerable feeling on the Chicago Board of Trade over the fact that some members cut under in the matter of commission. The board has a rule which states that no member engaged in buying or selling grain shall charge a less commission than one-fourth of a cent per bushel. It is now satisfactorily established that some of the members of the board have been doing business at a lower rate of commission, and of course the question arises: What is to be done about it?

In arguing the right and wrong of this matter the *Tribune* of this city says: The rate of commission for selling grain is a charge for services performed. If a man can earn more money by collecting a quarter of a cent than he can otherwise, he will continue to ask that rate so long as his customers will pay it; if, however, he finds that he can increase his business by reducing the rate of his commissions and sell 1,000,000 bushels of grain at one-eighth of a cent when he could sell only 100,000 bushels at one-quarter of a cent, we know no reason why he should refuse the greater and more profitable trade to accept the smaller and less profitable. It is possible that the number of persons offering to do commission business in grain has increased beyond the demand, and that those employing such merchants find that they can have their business done at lower rates and are availing themselves of the law of supply and demand, and are now paying only such rates as they find offered in the market. We do not understand that there is any legal or moral right to compel merchants to demand commissions at a higher rate than customers are willing to pay; nor do we understand how the customers can be compelled to pay higher commissions than are asked by the merchants seeking their business. If the rates of commission are too high it is useless to attempt to enforce them by the law, just as it is absurd to try to compel the payment of certain rates of wages when there are men willing and anxious to work at lower rates. The law of supply and demand operates in this case just as inexorably as it does in any other case of the rate of wages.

This reasoning would probably be deemed conclusive by some; but so long as the rule stands, it should be enforced by the board. If the matter of commissions is to be regulated by competition, by all means have the rule repealed, and have it understood that a commission merchant is to take what he can get or is willing to do the service for. Otherwise, a great injustice is done to those members of the board who adhere to the rule. By all means let the rule either be enforced or dropped.

R. DUNBAR & SON, of Buffalo, N. Y., have our thanks for a neat pamphlet describing and illustrating Gardner's Patent Three-Cylinder Engine, which Messrs. Dunbar & Son are building.

Editorial Mention.

THE grain mixing trouble in Milwaukee between Peter McGeoch and others, will probably be settled in the courts.

READ the handsome card of E. B. Preston & Co. in this issue. They handle all kinds of belting, and every variety of rubber goods.

CANALS certainly are on the boom just now. More than twenty projects of canal building and enlarging are on the carpet in different parts of the United States.

MR. AMOS K. ERSLAND, of Sheldahl, Iowa, inventor of a platform wagon dump for which a patent was granted him October 3, 1882, was a caller at our office the past month.

MAKE yourself a present of a year's subscription to this paper. Your business is not in complete running order unless you have the monthly visit of this journal to your office.

THE Board of Trade of this city laid the corner stone of their new building on Wednesday, December 13. A full description of the proposed building was given in our journal two months ago.

MR. M. F. SEELEY, of Fremont, Neb., a prominent western elevator builder, called upon us the past month and reported that the activity in elevator building and refitting was likely to continue for a good while into the future.

THE UNITED STATES SCALE CO., of Terre Haute, Ind., make all sorts of scales, including those used in elevators, mills, etc. Their prices are very reasonable and their scales are guaranteed to give satisfaction. Note their card in this issue.

SAN FRANCISCO papers are growling over the call system in that city. When it was adopted about a year ago it was generally favored by nearly all classes except the millers. Now, however, a good deal of opposition is developing against it, among others.

SEND us a Christmas present of one dollar and we will return the compliment (not the dollar) by sending you the AMERICAN ELEVATOR AND GRAIN TRADE for one year. We are sure that at the end of the year you will confess that you have had the best of the bargain.

THIS number completes the first half year of this paper's existence. From its first issue it has had a steady and healthy growth. Its list of subscribers has been augmented every day and now numbers so many that we fear our figures would not be credited if we gave them.

THE GREAT WESTERN MAN'F'G Co, of Leavenworth, Kas., has a card in this issue, to which the reader's attention is directed. This concern is one of the largest mill and elevator building firms in the country, and the past year has been one of the busiest in its history.

INFORMATION received from Panama shows that the work on the canal is being pushed forward with some degree of vigor, though scarcely so great as the average American enterprise of great magnitude usually exhibits. Yet there is no doubt that the enterprise is a "go," and people who are inclined to pooh-pooh its existence and prospects may as well conclude that that is genuine.

MESSRS. GEO. H. WARREN & Co., of Grafton, Neb., in subscribing to our journal write: "We have been very much pleased with the sample copies sent us of your AMERICAN ELEVATOR AND GRAIN TRADE, and consider it a valuable paper for any one in the grain business."

WE have been sending out a very large number of sample copies every month, and those who receive them should not delude themselves into the belief that they are going to get the paper regularly, free of charge. If you want the paper sent you every month, send us one dollar.

THE Kentucky Public Elevator Co., of Louisville, Ky., opened their 500,000 bushel house in that city on December 1. This elevator has about two miles of side-track. It starts out under favorable auspices, one of which is a subscription to the AMERICAN ELEVATOR AND GRAIN TRADE.

NEW YORK gets about 590 miles of free canals by the new constitutional amendment, including the Erie, 352; Champlain, 73; Black River, with branches, 89; Oswego, 38 and Cayuga and Seneca, 21 miles. Before useless laterals were abandoned the State owned and operated 900 miles of canal.

THE *American Angler* tells of a gentleman who fishes for rats around his warehouse with hook and line, the same as he would for bass or pike. He uses his rod and line about dusk, and says the sport is excellent, a large rat being no mean antagonist to handle at the end of a line. We think we would prefer a Quigley Trap.

ONE of the best-known and most widely-used corn shellers is the "Centrifugal," made by Vant, Cook & Co., of this city, and advertised in our columns. It is specially adapted for elevator and mill work and has a number of excellent points fully set forth in the illustrated price-list which Messrs. Vant, Cook & Co. send to those applying for it.

MESSRS. KERFOOT BROS., of Des Moines, Iowa, write us that owing to the great increase in their business they have been obliged to remove their stock of general mill furnishings and elevator supplies to 302 Court Avenue in that city, where their friends will find them with a larger stock of goods than ever before. We are pleased to hear of their success.

F. L. EASTMAN, local freight agent of the Wabash Railroad, announces that on and after Monday, December 11, a charge will be made on all grain held out for reinspection, or orders; if not disposed of within twenty-four hours after ordered held out, demurrage will be collected. The Wabash is obliged to adopt this rule on account of a very large percentage of cars held out for reinspection.

BLAINE, of Maine, evidently does not take much stock in the Nicaragua Canal. He recently said: "I never heard a more extraordinary proposition than for the United States to expend \$75,000,000 in a country where we have no control, and when we have a treaty with another country binding us not to assume any control. We have no treaty with Nicaragua giving us control of the canal after we shall have constructed it; while we have a treaty with that country forbidding our control. I mean, further, that in the unfortunate Clayton-Bulwer treaty we engaged with Great Britain not to fortify the canal when built, in any manner whatever. With these two treaties in force, it would be reckless folly for the

United States to expend a large sum of money on the proposed canal. We cannot afford to have any inter-oceanic canal in Central America, no matter who builds it, unless we can control it."

THERE seems to be no dearth of decisions in regard to options. About all the State Courts in the West have decided that ordinary option dealing is "gambling;" but legal decisions and even legislation cannot prevent people from speculating, or "gambling," if you like, on the strength of their judgment or foresight. Every one will admit that there are abuses connected with every kind of speculation; and it is the abuse and not the thing itself that should be corrected by legislation.

THE engineer having the matter in charge has reported to the Secretary of War that the plan of enlarging the outlet of Calumet Lake to Lake Michigan, so as to make the former a harbor, is entirely feasible, and can be done at a cost of about a quarter of a million dollars. If so, Calumet will be one of the "future great" shipping points for grain, lumber, etc., and might prove quite a rival to Chicago in this matter. Chicago ought to have been built down there, anyhow.

It has finally dawned upon Dr. Loring, the Commissioner of Agriculture, that a few ears of corn have been raised in the West this year, in spite of the previous figures given by the Bureau. He says: "I never saw a more luxuriant growth or better filled ears than I saw everywhere on my trip through the three states named; further east the corn was rather thin, below an average crop." Further on in the interview he said: "I have now at hand reliable statistics showing that the corn crop of the country will exceed 1,800,000,000 bushels, against 1,200,000,000 last year and 1,700,000,000 in 1880.

MESSRS. THORNBURGH & GLESSNER of this city have issued a card to their patrons, in which they announce that they have discontinued the manufacture of their Excelsior Conveyor and will hereafter handle only the Caldwell Patent Hollow Shaft Conveyor. They were led to this action from a conviction that they were infringing the Caldwell patent. All of Messrs. Thornburgh & Glessner's customers are protected by the terms of the settlement. Messrs. Wm. B. Scaife & Sons, of Pittsburgh, Pa., and H. W. Caldwell, of Chicago, the interested parties, speak very highly of Messrs. Thornburgh & Glessner in their arranging, at a pecuniary sacrifice to themselves, to protect their former customers, which relieves purchasers of their Conveyor from any litigation. Fair dealing is always commendable, and always wins.

THE Chicago Times does not take much stock in the improvement of the Mississippi. It says: "The appropriation for the Mississippi river this year was \$4,123,000, and the sum asked for next year is \$4,250,000. On Plum point reach, a stretch of thirty-eight miles above Memphis, \$575,419 was spent last year and \$700,000 will be spent this, and it has been proved that the 'improvements' undertaken at that place will be of very doubtful value when completed. There is every reason to believe that the largest share of these huge appropriations is always expended in works of no real use. If, however, the money for the improvement of the Mississippi were always judiciously expended, it is still far from certain that the river is or ever will be, for commercial purposes, worth what it costs the country."

NARROW VIEWS OF CANAL IMPROVEMENTS.

The fact that at the recent election, by a vote of the people practically unanimous, the State of Illinois has offered to cede to the United States the Illinois and Michigan Canal, has provoked adverse criticism from the press of Cincinnati, especially in relation to the conditions, which are regarded of special value in the interests of a rival city. Chicago will gain, it is said, an improved sewerage of immense value to its health and business, with a saving of many millions of dollars, wherein the jealous critic sees a shrewd "job." Whether the Government will accept this offer and enter upon a policy opposed to all its former traditions of ownership and care of the waterways for the inland transportation of the country, of which the acceptance of this offer and its conditions would be only a beginning, is as yet an open question, and a matter, perhaps, of considerable doubt. Laying local prejudices aside, no one can for a moment deny that the interests involved in the facilities of transportation of the productions of the West and Northwest from the valley of the Mississippi to the seaboard, affect directly so vast a section of the country as to render them of national importance. Our neighbor, Canada, with a population not larger than the State of New York, will have expended of her national funds \$50,000,000 on her St. Lawrence canal system when the improvements are completed that are now in progress. There can be little doubt, too, that, in imitation of the course of the State of New York, these canals will eventually be made free. Not only as a matter of competition, but in the interests of the rapidly growing demands of the great West for facilities of transportation for the immense and increasing productions to foreign markets, the nation must look forward to the opening of ship canals from the Mississippi valley to the Lakes and to the harbor of New York in a not far distant future. That the great city of Chicago, with its immense population gathered in a period of time too brief for all the needed improvements in houses, drainage, etc., which their health requires, should be incidentally benefitted by these improvements, should be a matter of congratulation and rejoicing rather than jealous criticism in all the other cities of our country. When New Orleans or Memphis or any other place where our citizens are gathered in large numbers, are stricken with yellow fever, the sorrow and sympathy is universal; and when, by national aid and boards of health, plans have been devised and executed which secure health and prosperity again to these great cities, the satisfaction and pleasure is equally pervasive and general.

That Chicago will be really benefitted in her business when these improvements in heavy shipments shall have rendered her more largely a point on the route of transit, rather than, as now, a great reservoir for the reception and handling of products, has been and is clearly a matter of question; to this the future must give reply. That, while guarding her own interests and the interests and welfare of her citizens as she ought, she will also give her influence and aid to all those plans and operations which will promote the welfare of the nation, we are fully assured.

The St. Louis Post-Dispatch ridicules the idea of Cincinnati building an elevator. The Dispatch says: "Cincinnati has no more use for a grain elevator than a blind man has for an opera glass, but it is customary for large cities to build grain elevators, and Cincinnati is not going to get left if she knows it." One would suppose that facts and statistics would make the village on the Big Muddy a little modest. The grain elevators of St. Louis seem to be mostly needed up at Kansas City.—*Inter-Ocean.*

Special Notices.

Buckwheat Grain Wanted.—The flour supplied at market price. H. H. Emminga, "Prairie Mills," Golden, Ill.

Elevator Men—Howes, Babcock & Ewell, of Silver Creek, N. Y., make a full line of wheat cleaning machinery. Read their advertisement on first cover page.

The American Miller—published by Mitchell Bros. Co., 184 and 186 Dearborn St., Chicago, Ill., is the largest, best and cheapest milling journal published. Subscription price only \$1.00 per year.

For Sale Cheap—Trimmer Scourer, Hominy Mill, Novelty Separator and Oat Separator. Address A. M., care AMERICAN ELEVATOR AND GRAIN TRADE.

FIRST-CLASS FLOUR AND FEED MILL FOR SALE CHEAP, AND ON REASONABLE TERMS.

A new first-class steam flour and feed mill, situated in the thriving new city of Ellinwood, Kan. The mill has four run of stones, eight reels, one smutter, one separator, one scourer, two purifiers, double set of rolls, and all the necessary elevators and machinery needed in a first-class mill. The mill is 150 feet from the depot. A good side track runs by the side of the mill. Coal costs \$4.50 per ton. There is plenty of wheat to run the mill the year through, and no opposition. The surrounding country is well settled. The market for flour and feed is good West. It is an excellent location for custom work. The reasons for selling are that the owner is not a practical miller, and has plenty of other business to engage his attention. It will pay any miller who desires a good location for making money, to investigate this matter. For full particulars inquire of owner,

F. A. STECKEL, Ellinwood, Kan.,
Or WARNER & WILBUR, Commission Merchants, 28 Metropolitan Block, Chicago, Ill.

GRADING GRAIN AT NEW YORK.

For a year past there has been much dissatisfaction at the manner in which grain has been graded at the New York Produce Exchange, and the Grading Committee has been the butt of much growling and complaint on the part of members who deal in grain. It is pointed out that the majority of the committee are raisers of grain and not importers, and that when the shippers send the grain abroad it is frequently turned back to them as not being up to the grade requirements. This is specially the case at the bottom of the grade of No. 2 corn. Frequent appeals have been lodged with the Arbitration Committee, but little satisfaction has been met with here, and now there is talk of an application to the Legislature at Albany for the creation of a State Inspector of Grain, who shall grade all grain coming into the State, and whose decision shall be final and binding on buyers and sellers.

THE NICARAGUA CANAL.

Telegraphic advices from Washington indicate increased interest and early action in Congress on the Nicaragua Canal bill, and there appears little doubt of its early passage. The merchants of San Francisco, as well as some of its capitalists, have signed liberally for stock, conditioned upon the passage and executive sanction of the bill, while advices from New York indicate that the 10 per cent. of capital required by the Incorporation Act to be called immediately after organization, will all be subscribed before Congress meets. The matter is now assuming a practical form; and, if the bill passes, (of which there is every indication), construction will soon follow the final location of the line. We have from the best engineering talent assurance that five years from its inception ships will be passing from ocean to ocean.

Together with the advocacy of free canals, comes the proposal to improve them. More rapid transit in the transportation of merchandise than that afforded by the horse and the tow-path is desired, and various plans have been suggested. The locomotive and railway along the banks of the canal find favor with some. In France locomotives weighing five tons are hauling five or six canal boats, or a floating weight of 1,000 tons. Whatever be the method taken, it is safe to predict that the New York canals will continue their career of usefulness.

Late Patents.**Issued on November 7, 1882.**

CAR STARTER.—Edward Gerig, Berlin, Germany. (No model.) No. 267,185. Filed September 20, 1882.

GRAIN CLEANER.—Louis Gathmann, Chicago, Ill. (No model.) No. 267,072. Filed August 11, 1882.

MACHINE FOR MIXING GRAIN OF DIFFERENT SIZES.—August W. Justi, Charleston, S. C. (No model.) No. 267,219. Filed September 11, 1882.

GRAIN SEPARATOR.—William H. Smith, Brookfield, Mich. (No model.) No. 267,270. Filed August 1, 1882.

GRAIN CLEANING AND SEPARATING MACHINE.—Willis Sperry, Dodge Center, Minn. (No model.) No. 267,032. Filed September 6, 1882.

Issued on November 14, 1882.

GRAIN SEPARATOR.—Harrison T. Lott, Lexington, Ill. (No model.) No. 267,549. Filed June 9, 1882.

PNEUMATIC CONVEYOR.—James W. Beach, Chicago, Ill. (No model.) No. 267,318. Filed April 17, 1882.

Issued on November 21, 1882.

FANNING MILL.—Jacob Luxem, Racine, Wis. (No model.) No. 267,699. Filed March 15, 1882.

APPARATUS FOR DRYING GRAIN.—Frederick W. Wiesebrook, New York, N. Y. (No model.) No. 267,813. Filed March 14, 1882.

Issued on November 28, 1882.

PNEUMATIC GRAIN ELEVATOR.—Lyman Smith, Kansas City, assignor to Lyman La Rue Smith, Jackson County, Mo. (No model.) No. 268,303. Filed September 9, 1882.

PNEUMATIC GRAIN ELEVATOR.—Lyman La Rue Smith, Kansas City, Mo. (No model.) No. 268,305. Filed August 4, 1882.

Issued on December 5, 1882.

GRAIN ELEVATOR.—Orlando D. Spalding, Eau Claire, Wis. (No model.) No. 268,743. Filed April 9, 1881. Renewed June 8, 1882.

MACHINE FOR DRYING, CLEANING AND CALCINING GRAIN AND OTHER SUBSTANCES.—William F. Witherell and Bennett H. Vary, Chicago, Ill. (No model.) No. 268,687. Filed August 2, 1882.

SIEVE OR SCREEN FOR GRAIN SEPARATORS.—Thomas J. Hubbell, Redwood City, Cal. (No model.) No. 268,491. Filed May 1, 1882.

The Williams & Orton Manfg Co., of Sterling, Ill., have recently furnished machinery to the following parties: H. Holway, of Calmine, Wis., a Sterling 20-inch mill; Dunbar Bros., Glenwood, Mo., a 20-inch Sterling Mill; Geo. Gray, Lancaster, Wis., a 20-inch Sterling mill for middlings; D. Siebert, Wichita, Kansas, a 20-inch Sterling mill; J. Labord, Oneco, Ill., a 20-inch Sterling mill; H. Anthony, Coleta, Ill., a 20-inch Sterling double-gear mill to be run by a windmill; Dubuque Oatmeal Mills, Dubuque, Iowa, a 20-inch double-gear mill, bolting chest, shafting, etc.; A. H. Mischke, Long Island, Kansas, a 20-inch Sterling mill, a wheat heater and boiler; J. B. Ehrsam, Enterprise, Kansas, a 20-inch Sterling mill, a 30-inch under-runner mill, and a lot of sheaves for transmissions; Wetherold & Penrose, Industry, Ill., a 30-inch under-runner mill and all the machinery for a new mill; W. K. Clark, Bangor, Me., a 20-inch Sterling mill for corn; Marshal Hurst, Wichita, Kansas, a 20-inch Sterling mill for grinding middlings; the Iowa Iron Works, Dubuque, Iowa, a double-gear 24-inch under-runner mill and a lot of pulleys, shafting, etc., for a new mill in Dakota.

FOR SALE.

A grain elevator, storage capacity 8,000 bushels, with corn sheller, cleaners, feed mill, etc. Corn cribs with 50,000 bushels capacity. Also a good coal shed, and other improvements. Good reason for selling. Will trade part for improved lands. A bargain if sale made soon. For full particulars address

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FOR SALE.

A large hay barn, grounds and press, with scales and office, and corn cribs that will hold from five to ten thousand bushels of corn. Everything handy, and a good chance for some one to go into the grain and hay business. Call on or address,

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Commission Merchants

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Orders for choice grades of milling wheat carefully and promptly attended to. The filling of shipping orders for bran and other millstuffs a specialty. Consignments solicited.

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References: Merchants Nat. Bank, Philadelphia Nat. Bank.

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WANTED—Responsible parties to solicit grain for us in the West. Liberal Commissions.**ESTABLISHED 1854.**
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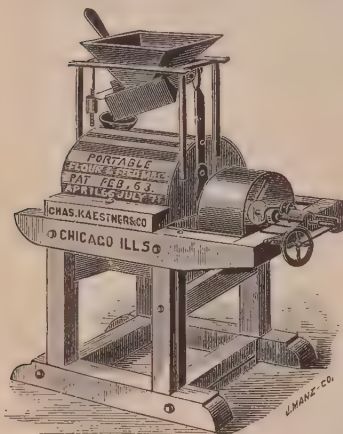
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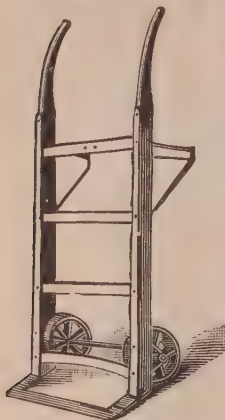
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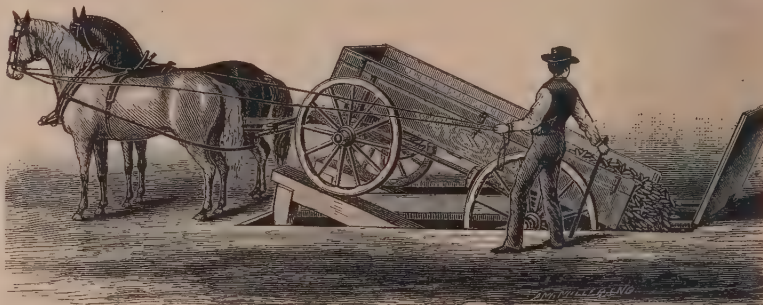
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To Parties Using Grain Dumps

Notice is hereby given that we have been retained to prosecute infringers of the following Letters Patent on Grain Dumps:

One granted to Noah Swickard, Oct. 13, 1865, No. 88,005. Reissued December 20, 1870, No. 4,212, for Improvement in Wagon and Car Unloading Apparatus.

One granted to Samuel C. Kenaga, Oct. 20, 1868, No. 88,288, for Improved Dumping Platform.

One granted to Benjamin Walton, Nov. 33, 1869, No. 97,252, for Improved Dumping Machine, and

One granted to Wm. M. Hall, Sept. 6, 1870, No. 107,040, for improvement in Grain Dumps, and all persons or parties manufacturing or using Grain Dumps which infringe on any of the above described Patents must make settlement for all past infringements, and take license in accordance with the usual terms, if they desire to continue to manufacture or use the same, or legal steps will be taken to enforce said Patents against all infringers.

Applications for licenses for using said patented improvements, and for settlement for past infringements should be addressed to **J. M. HARPER, El Paso, Ill.**

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Complainant's Counsel, Cincinnati, Ohio.

G. W. & C. A. LANE,

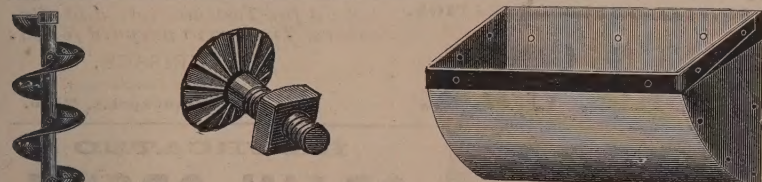
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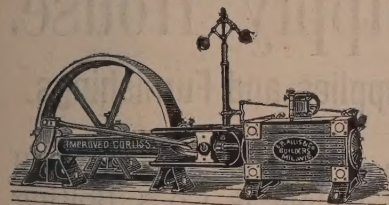
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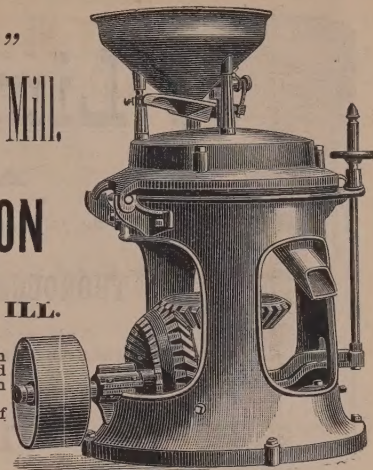
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6 "	7 x 4 1/2	.85	1.05	1.40
8 "	8 x 5	1.00	1.20	1.55
10 "	9 x 5 1/2	1.10	1.35	1.75
12 "	10 x 6	1.25	1.60	1.95
14 "	11 x 6 1/2	1.40	1.80	2.15
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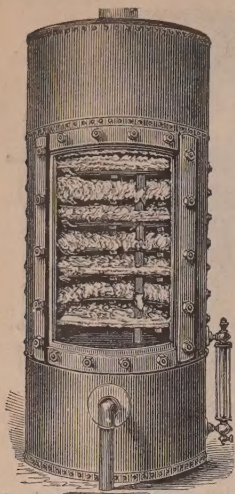
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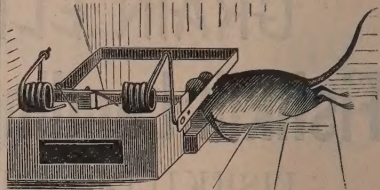
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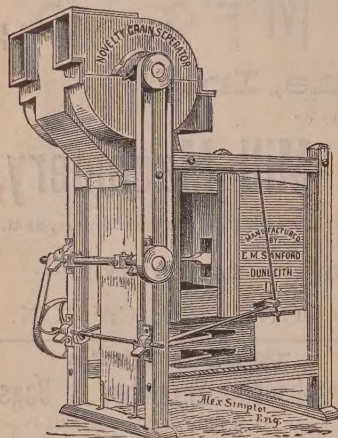


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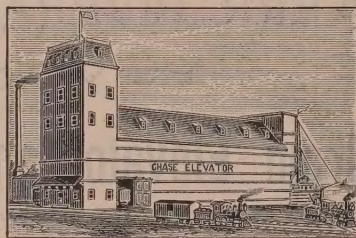


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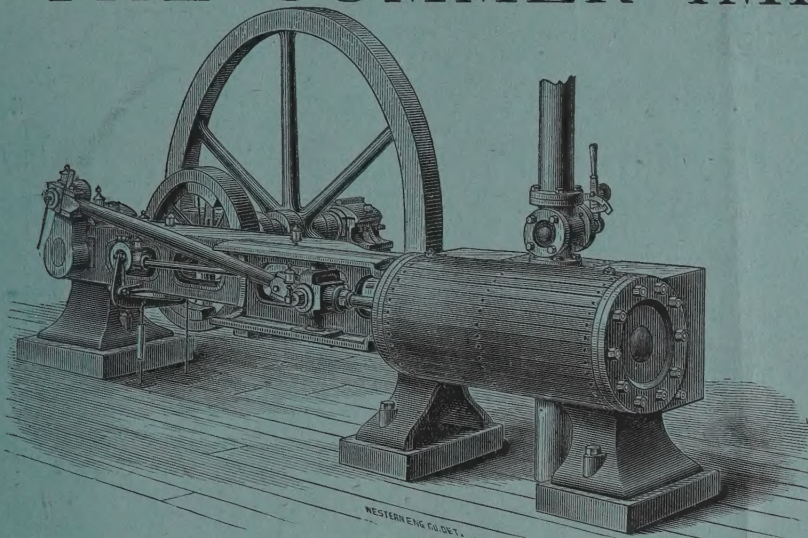
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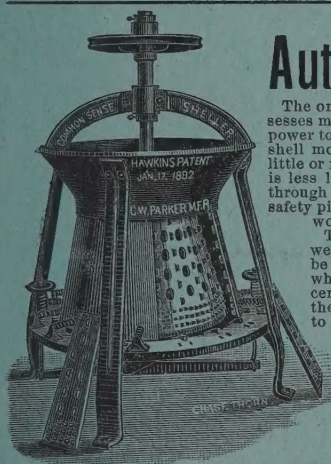
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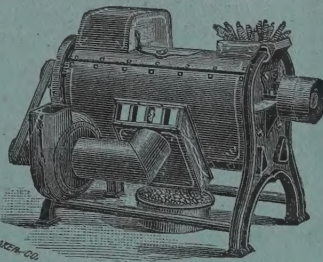
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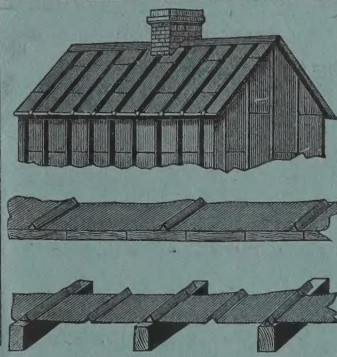
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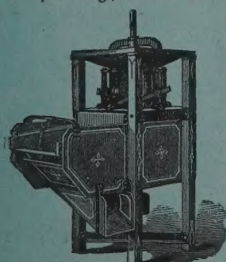
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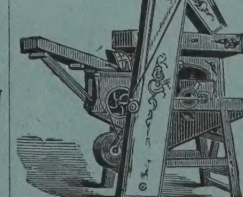
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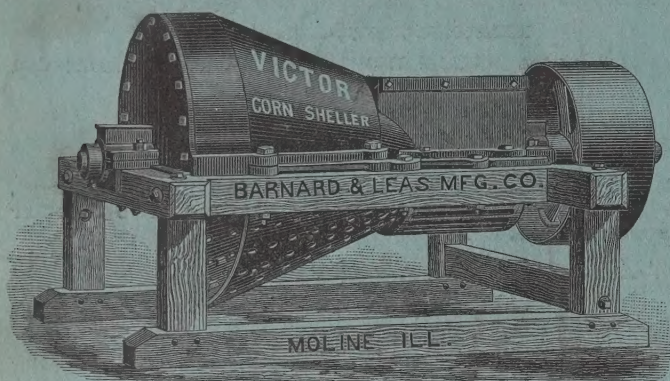


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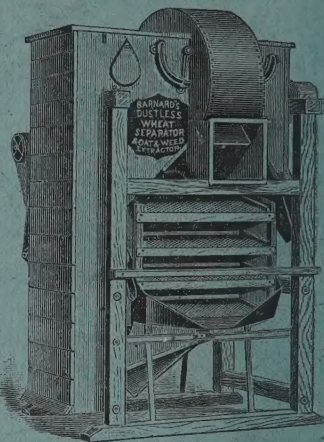


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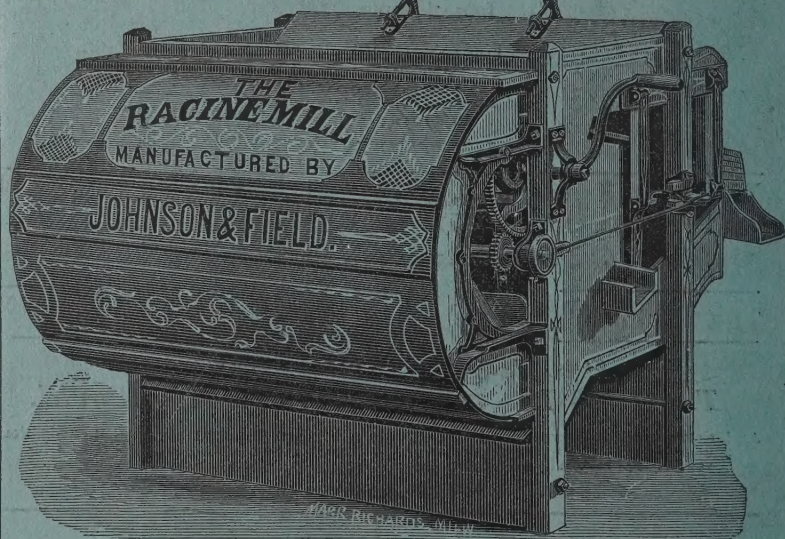
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